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PROJECT OPERATIONS BRANCH, CODE 513
GODDARD SPACE FLIGHT CENTER
GREENBELT, MARYLAND, U.S.A. 20771

SATELLITE SITUATION REPORT

VOLUME 30, NUMBER 1 MARCH 31, 1990

(NASA-TM-101105) SATELLITE SITUATION
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SATELLITE SITUATION REPORT
VOLUME 30 NO. 1
A/O 2400Z ON MARCH 31, 1990

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	SPACE OBJECTS BOX SCORE		DECAYED OBJECTS	
	OBJECTS IN ORBIT		PAYLOAD DEBRIS TOTAL	
	PAYLOAD DEBRIS	TOTAL	PAYLOAD DEBRIS	TOTAL
ARGENTINA	1	0	1	0
AUSTRALIA	4	0	4	0
BRAZIL	3	0	3	0
CANADA	14	0	14	0
CZECH	0	0	0	0
ESA	19	162	181	388
ESRO	0	0	0	3
FRANCE	17	21	38	53
FRANCE/FRG	2	0	2	0
FRG	8	1	9	5
INDIA	8	0	8	7
INDONESIA	4	0	4	1
INTERNATIONAL TELECOM- MUNICATIONS SATELLITE ORGANIZATION (ITSO)				
ISRAEL	38	0	38	1
ITALY	0	0	0	1
JAPAN	1	0	1	1
LUXEMBOURG	43	49	92	55
MEXICO	1	0	1	0
NATO	2	0	2	0
NETHERLANDS	6	0	6	0
PRC	0	0	0	3
SAUDI ARABIA	8	5	13	51
SPAIN	2	0	2	0
SWEDEN	1	0	1	0
UK	2	0	2	0
US	13	1	14	4
USSR	560	2465	3025	2562
COLUMN	1132	2036	3168	8676
SUM TOTAL	1889	4740	6629	11809
				13928
				20557

OBJECTS IN ORBIT										NOTES
INTER-NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	
1958 LAUNCHES										
BETA 1	VANGUARD 1	16	US	17 MAR	137.8	34.3	4268	653		
BETA 2		5	US	17 MAR	133.4	34.2	3882	653		
BETA 3		1576	US	17 MAR	128.2	34.2	3429	656		
1959 LAUNCHES										
ALPHA 1	VANGUARD 2	11	US	17 FEB	123.3	32.9	3101	558		
ALPHA 2		12	US	17 FEB	127.7	32.9	3484	558		
ETA 1	VANGUARD 3	20	US	18 SEP	127.1	33.3	3475	513		
IOTA 1	EXPLORER 7	22	US	13 OCT	99.2	50.3	911	532		
MU 1	LUNA 1	112	USSR	2 JAN	HELIOCENTRIC ORBIT					
NU 1	PIONEER 4	113	US	3 MAR	HELIOCENTRIC ORBIT					
1960 LAUNCHES										
ALPHA 1	PIONEER 5	27	US	11 MAR	HELIOCENTRIC ORBIT					
BETA 1		28	US	1 APR	95.5	48.4	547	535		
BETA 2	TIROS 1	29	US	1 APR	98.5	48.4	708	666		
BETA 4		115	US	1 APR	98.8	48.2	741	661		
ETA 1	TRANSIT 2A	45	US	22 JUN	101.0	66.7	1003	606		
ETA 2	GREB	46	US	22 JUN	100.5	66.7	966	506		
ETA 3		47	US	22 JUN	100.6	66.7	968	604		
ETA 4		840	US	22 JUN	99.0	66.7	851	566		
ETA 5		841	US	22 JUN	98.8	66.7	842	563		
ICTA 2		50	US	12 AUG	118.1	47.2	1685	1502		
ICTA 3		51	US	12 AUG	118.3	47.2	1687	1517		
ICTA 4		52	US	12 AUG	CURRENT ELEMENTS NOT MAINTAINED					
ICTA 5		53	US	12 AUG	118.4	47.3	1687	1529		
NU 1	COURIER 18	58	US	4 OCT	107.1	28.3	1214	967		
NU 2		59	US	4 OCT	106.6	28.2	1209	926		
XI 1	EXPLORER 8	60	US	3 NOV	104.6	49.9	1552	403		
PI 1	TIROS 2	63	US	23 NOV	96.9	49.5	646	570		
PI 4		75	US	23 NOV	91.1	48.5	341	319		
PI 5		5922	US	23 NOV	105.3	47.0	1037	975		
1961 LAUNCHES										
APSI 5		19436	US	18 SEP	95.7	58.3	557	546		
GAMMA 1	VENERA 1	80	USSR	12 FEB	HELIOCENTRIC ORBIT					
DELTA 2		92	US	16 FEB	117.9	38.9	2538	635		
DELTA 3		95	US	16 FEB	110.0	38.8	1867	588		
DELTA 6		3927	US	16 FEB	112.2	38.9	2050	603		
DELTA 7		4026	US	16 FEB	112.5	38.9	2086	599		
NU 1	EXPLORER 11	107	US	27 APR	105.3	28.8	1529	483		
NU 2		3739	US	27 APR	90.6	28.8	334	273		
OMICRON 1	TRANSIT 4A	116	US	29 JUN	103.6	65.8	985	871		
OMICRON 2	INJUN-SR-3	117	US	29 JUN	103.7	66.8	990	873		

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INTER-
NATIONAL
DESIGNATION NAME

1961 LAUNCHES (CONT.)

OMICRON 3 - 297
OMICRON 23
OMICRON 39
RHO 1
RHO 2
RHO 3
RHO 4
SIGMA 1
SIGMA 3
SIGMA 4
A DELTA 1
A DELTA 3
A DELTA 4
A DELTA 5
A DELTA 6
A ETA 1
A ETA 2
A ETA 3
A ETA 4

TIROS 3
TIROS 3
MIDAS 3
MIDAS 4
TRANSIT 4B
TRAAC

1962 LAUNCHES

ALPHA 1
ALPHA 2
BETA 1
BETA 2
BETA 3
BETA 4
KAPPA 1
KAPPA 3
KAPPA 4
MU 2
A ALPHA 1
A ALPHA 2
A ALPHA 3
A ALPHA 4
A EPSILON 1
A EPSILON 2
A OMICRON 1
A OMICRON 3
A OMICRON 4
A RHO 1
A RHO 2
A PSI 1
A PSI 3
B ALPHA 1
B ALPHA 2
B ALPHA 3
B ALPHA 4
B ETA 1

RANGER 3
TIROS 4
TIROS 5
TELSTAR 1
MARINER 2
TIROS 6
ALOUETTE 1
RANGER 5

OBJECTS IN ORBIT

CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
138	US	29 JUN	SEE NOTE	67.1	952	894		1*
154	US	29 JUN	103.5	66.6	963	838		
162	US	12 JUL	100.1	47.9	796	727		
165	US	12 JUL	98.8	47.9	724	676		
166	US	12 JUL	95.7	47.9	586	513		
167	US	12 JUL	101.6	47.9	908	761		
163	US	12 JUL	161.4	91.2	3540	3343		
188	US	12 JUL	161.1	91.2	3537	3318		
196	US	12 JUL	161.8	91.2	3570	3346		
192	US	21 OCT	165.9	95.9	3763	3482		
194	US	21 OCT	165.5	95.9	3848	3365		
195	US	21 OCT	166.3	95.9	3878	3400		
2009	US	21 OCT	165.7	95.9	3732	3494		
2371	US	21 OCT	165.3	95.9	4658	2541		
202	US	15 NOV	105.8	32.4	1106	954		
205	US	15 NOV	105.8	32.4	1108	956		
204	US	15 NOV	105.6	32.4	1097	951		
10796	US	15 NOV	105.8	32.4	1107	955		

CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
221	US	26 JAN	HELIOCENTRIC ORBIT					
222	US	8 FEB	100.0	48.3	819	697		
226	US	8 FEB	100.8	48.2	900	667		
227	US	8 FEB	98.3	48.4	698	654		
228	US	8 FEB	98.4	48.3	720	641		
229	US	9 APR	152.9	86.6	3409	2779		
271	US	9 APR	152.5	86.6	3379	2777		
273	US	9 APR	153.3	86.6	3446	2770		
282	US	23 APR	HELIOCENTRIC ORBIT					
309	US	19 JUN	99.7	58.1	900	583		
311	US	19 JUN	94.7	58.1	545	461		
312	US	19 JUN	100.4	58.2	971	587		
313	US	19 JUN	95.5	58.0	602	480		
340	US	10 JUL	157.8	44.8	5639	950		
341	US	10 JUL	157.6	44.8	5622	951		
349	US	23 AUG	98.4	98.4	778	588		
369	US	23 AUG	96.9	98.5	685	535		
378	US	23 AUG	96.9	98.5	676	546		
388	US	27 AUG	HELIOCENTRIC ORBIT					
374	US	27 AUG	HELIOCENTRIC ORBIT					
375	US	18 SEP	97.9	59.3	669	644		
397	US	18 SEP	98.0	59.4	688	633		
399	US	29 SEP	105.3	80.5	1024	988		
424	CANADA	29 SEP	105.3	80.5	1020	992		
426	US	29 SEP	105.2	80.5	1015	990		
510	US	29 SEP	105.3	80.4	1031	984		
511	US	18 OCT	HELIOCENTRIC ORBIT					
439	US	18 OCT	HELIOCENTRIC ORBIT					

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INTER- NATIONAL DESIGNATION		NAME	OBJECTS IN ORBIT			CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1962 LAUNCHES (CONT.)														
B ETA 2			US	18 OCT		440								
B MU 1	ANNA 1B		US	31 OCT	HELIOCENTRIC ORBIT	446			107.9	50.1	1181	1076		
B MU 2			US	31 OCT		447			107.6	50.1	1165	1065		
B MU 3			USSR	1 NOV	HELIOCENTRIC ORBIT	450								
B UPSILON 1	RELAY 1		US	13 DEC		503			185.1	47.5	7427	1331		
B UPSILON 2			US	13 DEC		515			184.8	47.5	7408	1332		
B CHI 1	EXPLORER 16		US	16 DEC		506			104.2	52.0	1163	746		
1963 LAUNCHES														
1963 004A	SYNCOM 1		US	14 FEB	CURRENT ELEMENTS NOT MAINTAINED	553								
1963 008B	LUNA 4		USSR	2 APR	BARYCENTRIC ORBIT	566			225.3	42.7	10810	964		
1963 013A	TELSTAR 2		US	7 MAY		573			225.0	42.7	10791	962		
1963 013B			US	7 MAY		575			166.4	87.4	3681	3602		
1963 014A			US	9 MAY		574			165.4	87.3	4830	2376		
1963 014B	ERS 5		US	9 MAY		579			166.4	87.3	3732	3551		
1963 014C	ERS 6		US	9 MAY		608			SEE NOTE					
1963 014D - 14FA			US	9 MAY	2*									
1963 014FA			US	9 MAY		20033			164.8	86.2	5309	1849		
1963 022A			US	16 JUN		594			94.4	89.8	494	486		
1963 022B			US	16 JUN		603			97.5	89.8	646	628		
1963 022C			US	16 JUN		610			97.5	90.1	667	608		
1963 024A	TIROS 7		US	19 JUN		604			95.1	58.2	530	518		
1963 025B			US	27 JUN		614			117.8	82.1	2835	328		
1963 030A	ERS 10		US	18 JUL		622			167.8	88.4	3721	3676		
1963 030B	ERS 9		US	18 JUL		635			167.8	88.4	3716	3681		
1963 030C			US	18 JUL		630			167.4	88.4	3750	3618		
1963 030E			US	18 JUL		631			168.2	88.4	3755	3676		
1963 030F			US	18 JUL		3121			167.8	88.4	3728	3668		
1963 030G			US	18 JUL		3132			167.8	88.4	3746	3653		
1963 030H			US	18 JUL		20153			163.8	88.3	5740	1335		
1963 031A	SYNCOM 2		US	26 JUL	CURRENT ELEMENTS NOT MAINTAINED	634								
1963 038A			US	28 SEP		669			107.0	89.9	1105	1068		
1963 038B			US	28 SEP		670			107.2	89.9	1128	1062		
1963 038C	SN 39		US	28 SEP		671			107.1	89.9	1126	1062		
1963 038D			US	28 SEP		672			106.4	89.9	1081	1036		
1963 038E			US	28 SEP		745			106.6	89.9	1086	1054		
1963 038F			US	28 SEP		2097			106.5	89.9	1088	1035		
1963 038G			US	28 SEP		3166			107.2	89.9	1127	1062		
1963 038K			US	28 SEP		12943			104.7	89.9	1081	879		
1963 038K			US	28 SEP		20470			106.9	89.9	1111	1055		
1963 039A			US	17 OCT	CURRENT ELEMENTS NOT MAINTAINED	674								
1963 039C			US	17 OCT	CURRENT ELEMENTS NOT MAINTAINED	692								
1963 047A	CENTAUR 2		US	27 NOV	CURRENT ELEMENTS NOT MAINTAINED	694			105.3	30.4	1541	472		
1963 047B - 047U			US	27 NOV	SEE NOTE 3*									
1963 049A			US	5 DEC		703			106.7	90.0	1083	1061		
1963 049B			US	5 DEC		704			107.0	90.1	1114	1056		
1963 049C			US	5 DEC		705			106.9	90.1	1110	1057		
1963 049D			US	5 DEC		706			106.6	90.0	1091	1044		
1963 049E			US	5 DEC		715			106.0	90.0	1060	1022		

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OBJECTS IN ORBIT

INTER-NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCL-NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1963 LAUNCHES (CONT.)										
1963 049F		753	US	5 DEC	106.7	90.0	1099	1044		
1963 049G		2432	US	5 DEC	106.9	90.1	1111	1055		
1963 049H		2620	US	5 DEC	106.3	90.0	1066	1047		
1963 053B		721	US	19 DEC	115.3	79.6	2336	599		
1963 053C		722	US	19 DEC	111.4	78.7	1922	657		
1963 053E		724	US	19 DEC	110.7	78.6	1890	627		
1963 053G		726	US	19 DEC	108.3	75.5	1704	592		
1963 053H		732	US	19 DEC	111.2	78.7	1917	650		
1963 053J		3750	US	19 DEC	110.0	78.6	1829	623		
1963 053K		17665	US	19 DEC	111.7	78.7	1936	669		
1963 054A	TIROS 8	716	US	21 DEC	98.7	58.5	713	679		
1963 054B		717	US	21 DEC	94.2	58.5	481	473		
1963 054C		720	US	21 DEC	100.3	59.5	866	679		
1963 054E		19396	US	21 DEC	98.5	58.5	712	660		
1964 LAUNCHES										
1964 001A		727	US	11 JAN	103.3	69.9	921	905		
1964 001B	GRAVITY GRADIENT 1	728	US	11 JAN	103.2	69.9	918	901		
1964 001C	SECOR (EGRS) 1	729	US	11 JAN	103.3	69.9	923	905		
1964 001D	SOLRAD 7A	730	US	11 JAN	103.3	69.9	921	904		
1964 001E	GREB	731	US	11 JAN	103.3	69.9	921	904		
1964 002A		733	US	19 JAN	100.8	99.1	823	772		
1964 002B		734	US	19 JAN	100.9	99.1	813	793		
1964 002C		735	US	19 JAN	101.0	99.1	818	793		
1964 003A	RELAY 2	737	US	21 JAN	194.7	46.4	7526	1975		
1964 003B		738	US	21 JAN	194.8	46.4	7532	1974		
1964 004B		741	US	25 JAN	108.8	81.5	1301	1039		
1964 004C		742	US	25 JAN	108.7	81.5	1295	1037		
1964 004D		743	US	25 JAN	108.6	81.5	1295	1031		
1964 006A	ELEKTRON 1	746	USSR	30 JAN	163.9	60.8	6678	407		
1964 006B	ELEKTRON 2	748	USSR	30 JAN	1356.4	63.5	58560	9862		
1964 006C - 006AD			USSR	30 JAN	SEE NOTE	4*				
1964 016D	ZOND 1	785	USSR	2 APR	102.4	90.5	909	831		
1964 026A		801	US	4 JUN	102.5	90.0	905	844		
1964 026B		805	US	4 JUN	100.0	90.8	809	705		
1964 026C		806	US	4 JUN	102.6	90.5	926	838		
1964 026D		809	US	4 JUN	102.7	90.5	930	841		
1964 026E		2986	US	4 JUN	101.3	99.8	824	815		
1964 031A		812	US	18 JUN	101.3	99.8	825	816		
1964 031B		813	US	18 JUN	101.1	99.8	821	804		
1964 031C		815	US	18 JUN	101.1	99.8	821	804		
1964 038A		829	USSR	10 JUL	162.3	60.8	6546	408		
1964 038C	ELEKTRON 3	831	USSR	10 JUL	143.3	60.8	4988	395		
1964 040A		836	US	17 JUL	CURRENT ELEMENTS NOT MAINTAINED					
1964 040B		837	US	17 JUL	CURRENT ELEMENTS NOT MAINTAINED					
1964 041B		843	US	28 JUL	CURRENT ELEMENTS NOT MAINTAINED					
1964 047A	SYNCOM 3	858	US	19 AUG	CURRENT ELEMENTS NOT MAINTAINED					
1964 047B		862	US	19 AUG	CURRENT ELEMENTS NOT MAINTAINED					
1964 049D	COSMOS 41	969	USSR	22 AUG	714.7	71.5	37853	234.7		

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1964 LAUNCHES (CONT.)											
1564 049E		898	USSR	22 AUG	717.8	71.5	37982	2370			
1964 049F		13091	USSR	22 AUG	714.4	71.1	37879	2307			
1964 051A	EXPLORER 23	870	US	25 AUG	103.6	79.9	1005	856			
1964 051B		871	US	25 AUG	103.3	79.9	983	847			
1964 053A	COSMOS 44	876	USSR	28 AUG	98.8	65.1	807	599			
1964 053B		877	USSR	28 AUG	99.1	65.1	759	671			
1964 054A	OGO 1	879	US	5 SEP	CURRENT ELEMENTS NOT MAINTAINED						
1964 063A	NNSS 30010	893	US	6 OCT	106.2	90.0	1068	1030			
1964 063B		897	US	6 OCT	106.4	90.0	1075	1046			
1964 063C		900	US	6 OCT	105.7	90.0	1042	1010			
1964 063D		901	US	6 OCT	106.4	90.0	1073	1045			
1964 063E		902	US	6 OCT	106.5	90.0	1076	1049			
1964 063F		903	US	6 OCT	105.6	90.0	1036	1008			
1964 064A	EXPLORER 22	899	US	10 OCT	104.4	79.7	1057	875			
1964 064B		907	US	10 OCT	104.5	79.7	1060	878			
1964 064C		976	US	10 OCT	103.2	79.3	1010	813			
1964 064D		977	US	10 OCT	105.0	80.0	1092	891			
1964 073A	MARINER 3	923	US	5 NOV	HELIOCENTRIC ORBIT						
1964 076B	EXPLORER 25	932	US	21 NOV	114.9	81.3	2380	523			
1964 076C		933	US	21 NOV	114.3	81.3	2324	524			
1964 077A	MARINER 4	938	US	28 NOV	HELIOCENTRIC ORBIT						
1964 077B		942	US	28 NOV	HELIOCENTRIC ORBIT						
1964 078C	ZOND 2	945	USSR	30 NOV	HELIOCENTRIC ORBIT						
1964 083A	NNSS 30020	953	US	13 DEC	106.0	89.8	1064	1016			
1964 083B		956	US	13 DEC	105.8	89.8	1058	1003			
1964 083C		959	US	13 DEC	106.0	89.8	1069	1008			
1964 083D		965	US	13 DEC	106.2	89.8	1080	1016			
1964 083F		967	US	13 DEC	105.8	89.8	1059	1003			
1964 083G		1099	US	13 DEC	106.0	89.8	1069	1009			
1964 083J		1608	US	13 DEC	105.3	89.8	1033	982			
1964 086A	EXPLORER 26	963	US	21 DEC	CURRENT ELEMENTS NOT MAINTAINED						
1965 LAUNCHES											
1965 004A	TIRD 5 9	978	US	22 JAN	119.0	96.4	2567	702			
1965 004B		979	US	22 JAN	118.8	96.4	2554	701			
1965 004C		1312	US	22 JAN	117.6	96.3	2474	669			
1965 004D		1313	US	22 JAN	120.1	96.4	2640	730			
1965 008A		1001	US	11 FEB	145.4	32.1	2796	2766			
1965 008B		1000	US	11 FEB	145.7	32.1	2802	2783			
1965 008C		1002	US	11 FEB	145.8	32.1	2808	2784			
1965 010B		1087	US	17 FEB	BARYCENTRIC ORBIT						
1965 016A	GREB	1271	US	9 MAR	103.3	70.1	928	896			
1965 016B	GRAVITY GRADIENT 2	1244	US	9 MAR	103.3	70.1	930	897			
1965 016C	GRAVITY GRADIENT 3	1292	US	9 MAR	103.1	70.1	920	889			
1965 016D	SOLRAD 74	1291	US	9 MAR	103.3	70.1	932	899			
1965 016E	SECOR (EGRS) 3	1208	US	9 MAR	103.3	70.1	929	898			
1965 016F	OSCAR 3	1293	US	9 MAR	102.9	70.1	909	882			
1965 016H	SURCAL	1272	US	9 MAR	103.3	70.1	933	899			
1965 016J		1245	US	9 MAR	103.2	70.1	927	893			

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OF POOR QUALITY

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1965 LAUNCHES (CONT.)										
1965 016K		12099	US	9 MAR	103.1	70.1	920	889		
1965 020E		1335	USSR	15 MAR	107.2	56.1	1596	594		
1965 020S		1347	USSR	15 MAR	104.2	56.0	1358	551		
1965 020AH		1370	USSR	15 MAR	104.4	56.0	1389	541		
1965 020BH		1392	USSR	15 MAR	105.8	55.9	1538	525		
1965 020BC		1477	USSR	15 MAR	112.1	55.5	1825	822		
1965 020BD		1478	USSR	15 MAR	110.3	56.1	1844	635		
1965 020BE		1479	USSR	15 MAR	114.9	56.1	2102	802		
1965 020BV		1480	USSR	15 MAR	114.8	56.1	2139	752		
1965 020CV		1495	USSR	15 MAR	104.9	55.6	1354	625		
1965 020ED		1549	USSR	15 MAR	114.5	56.2	2098	769		
1965 020EH		1634	USSR	15 MAR	115.9	56.2	2178	809		
1965 020EM		2334	USSR	15 MAR	110.9	55.7	1750	785		
1965 020EN		2934	USSR	15 MAR	115.4	55.6	1758	1191		
1965 020ES		3038	USSR	15 MAR	108.9	56.3	1757	590		
1965 020ET		3708	USSR	15 MAR	104.7	56.3	1343	619		
1965 020EU		3743	USSR	15 MAR	118.1	56.7	1810	1383		
1965 020EV		3745	USSR	15 MAR	115.3	56.0	1587	1351		
1965 020EW		3749	USSR	15 MAR	108.1	56.1	1659	620		
1965 020EY		3931	USSR	15 MAR	116.6	55.1	1698	1358		
1965 020FY		3963	USSR	15 MAR	98.5	55.9	890	480		
1965 020FD		3965	USSR	15 MAR	117.8	56.3	1793	1373		
1965 020FF		6252	USSR	15 MAR	117.1	56.0	1695	1407		
1965 023B		13517	USSR	15 MAR	109.8	55.6	1706	727		
1965 025A	EARLY BIRD	1298	US	21 MAR	HELIOCENTRIC ORBIT					
1965 027A		1317	ITSO	6 APR	1435.7	14.1	35035	35721		
1965 027B		1314	US	3 APR	111.4	90.3	1314	1270		
1965 027B - 027B)	SECOR (EGRS) 4	1315	US	3 APR	111.4	90.3	1312	1265		
1965 027BB		20031	US	3 APR	111.4	90.3	1312	1269		
1965 028B		1318	US	6 APR	CURRENT ELEMENTS NOT MAINTAINED					
1965 032A	EXPLORER 27	1328	US	29 APR	107.8	41.2	1319	925		
1965 032B		1358	US	29 APR	107.8	41.2	1229	927		
1965 032D		2011	US	29 APR	108.4	41.2	1229	1079		
1965 034A		1359	US	6 MAY	157.1	32.1	3738	2792		
1965 034B		1360	US	6 MAY	309.9	32.2	14815	2764		
1965 034C		1361	US	6 MAY	145.6	32.1	2795	2786		
1965 034D		2529	US	6 MAY	309.8	32.2	14808	2771		
1965 038A		1377	US	20 MAY	97.8	98.2	792	517		
1965 038B		1378	US	20 MAY	96.5	98.0	691	489		
1965 044A	LUNA 6	1393	USSR	8 JUN	HELIOCENTRIC ORBIT					
1965 048A	NNSS 30040	1420	US	24 JUN	106.7	90.1	1130	1014		
1965 048B		1428	US	24 JUN	106.5	90.1	1107	1018		
1965 048C		1425	US	24 JUN	106.8	90.1	1130	1022		
1965 048D		1435	US	24 JUN	106.0	90.1	1094	986		
1965 048E		2701	US	24 JUN	106.1	90.1	1086	1002		
1965 048F		3592	US	24 JUN	106.1	90.1	1090	1004		
1965 048L		19062	US	24 JUN	103.5	89.9	984	865		
1965 051A	TIROS 10	1430	US	2 JUL	100.2	98.8	813	725		
1965 051B		1433	US	2 JUL	99.8	98.6	788	710		

5*

INTER- NATIONAL DESIGNATION	NAME	OBJECTS IN ORBIT				PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
		CATALOG NUMBER	SOURCE	LAUNCH							
1965 LAUNCHES (CONT.)											
1965 051C		1440	US	2 JUL	96.4	98.6	639	530			
1965 051D		1529	US	2 JUL	101.5	99.1	859	802			
1965 056A	ZOND 3	1454	USSR	18 JUL	HELIOCENTRIC ORBIT						
1965 058A		1458	US	20 JUL	CURRENT ELEMENTS NOT MAINTAINED						
1965 058B		1459	US	20 JUL	CURRENT ELEMENTS NOT MAINTAINED						
1965 063A	SECOR (EGRS) 5	1506	US	10 AUG	122.2	69.2	2424	1130			
1965 063B		1502	US	10 AUG	122.2	69.2	2422	1132			
1965 064A	CENTAUR 6	1503	US	11 AUG	BARYCENTRIC ORBIT						
1965 065A	NNSS 30050	1504	US	13 AUG	107.7	90.0	1173	1070			
1965 065B		1508	US	13 AUG	107.6	89.9	1145	1083			
1965 065C		1510	US	13 AUG	106.1	90.0	1087	1000			
1965 065D		1511	US	13 AUG	108.0	90.0	1182	1081			
1965 065E		1512	US	13 AUG	108.0	90.0	1184	1082			
1965 065F		1514	US	13 AUG	107.9	90.0	1184	1077			
1965 065G		1515	US	13 AUG	107.3	90.0	1152	1054			
1965 065H		1520	US	13 AUG	107.9	90.0	1181	1077			
1965 065J		1521	US	13 AUG	108.0	90.0	1185	1082			
1965 065K		1577	US	13 AUG	107.9	90.0	1179	1079			
1965 065L		1522	US	13 AUG	108.0	90.0	1185	1081			
1965 065P		3810	US	13 AUG	107.3	90.0	1152	1055			
1965 065Q		5265	US	13 AUG	107.8	89.9	1154	1092			
1965 065T		11855	US	13 AUG	99.1	89.9	746	687			
1965 070A	COSMOS 80	1570	USSR	3 SEP	115.0	56.1	1539	1366			
1965 070B	COSMOS 81	1571	USSR	3 SEP	115.3	56.1	1542	1396			
1965 070C	COSMOS 82	1572	USSR	3 SEP	115.7	56.1	1551	1419			
1965 070D	COSMOS 83	1573	USSR	3 SEP	116.0	56.1	1563	1442			
1965 070E	COSMOS 84	1574	USSR	3 SEP	116.4	56.1	1572	1466			
1965 070F		1575	USSR	3 SEP	114.6	56.1	1515	1356			
1965 070G		3045	USSR	3 SEP	115.9	55.5	1727	1265			
1965 072A		1580	US	10 SEP	101.3	98.7	1004	637			
1965 072D		1583	US	10 SEP	100.5	98.6	941	624			
1965 072E		1931	US	10 SEP	102.1	98.9	1080	630			
1965 072F		1932	US	10 SEP	98.6	98.3	788	599			
1965 073A	COSMOS 86	1584	USSR	18 SEP	115.0	56.1	1625	1288			
1965 073B	COSMOS 87	1585	USSR	18 SEP	115.4	56.1	1634	1316			
1965 073C	COSMOS 88	1586	USSR	18 SEP	115.8	56.1	1648	1337			
1965 073D	COSMOS 89	1587	USSR	18 SEP	116.2	56.1	1661	1361			
1965 073E	COSMOS 90	1588	USSR	18 SEP	116.6	56.1	1669	1390			
1965 073F		1589	USSR	18 SEP	116.8	56.1	1679	1393			
1965 073G		1590	USSR	18 SEP	116.0	56.1	1639	1360			
1965 073H		1591	USSR	18 SEP	116.3	56.1	1659	1369			
1965 073J		1617	USSR	18 SEP	117.1	56.1	1740	1358			
1965 073K		1618	USSR	18 SEP	117.4	56.2	1743	1383			
1965 073L		2647	USSR	18 SEP	116.0	56.1	1649	1350			
1965 078A		1613	US	5 OCT	119.2	144.3	2884	409			
1965 078B		1616	US	5 OCT	118.0	144.3	2774	410			
1965 082B - 082UP			US	15 OCT	SEE NOTE 7*						
1965 089A	EXPLORER 29	1726	US	6 NOV	120.3	59.4	2269	1118			
1965 089B		1729	US	6 NOV	120.3	59.4	2268	1116			
1965 089C		2700	US	6 NOV	119.1	59.6	2219	1065			

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INTER-
NATIONAL
DESIGNATION NAME
1965 LAUNCHES (CONT.)

OBJECTS IN ORBIT

CATALOG
NUMBER SOURCE LAUNCH PERIOD
MINUTES INCL-
NATION APOGEE
KM. PERIGEE
KM. TRANSMITTING
FREQ.(MHZ) NOTES

1965 089D		2988	US	6 NOV	121.3	59.2	2324	1152	
1965 091A	VENERA 2	1730	USSR	12 NOV	HELIOCENTRIC ORBIT				
1965 092D		1736	USSR	16 NOV	HELIOCENTRIC ORBIT				
1965 093A	EXPLORER 30	1738	US	19 NOV	100.3	59.7	873	676	
1965 093B		1739	US	19 NOV	100.0	59.7	828	690	
1965 093C		2013	US	19 NOV	98.6	59.7	744	634	
1965 093D		2088	US	19 NOV	100.3	59.7	861	685	
1965 096A	A-1	1778	FRANCE	26 NOV	107.8	34.2	1720	528	
1965 096B		1805	FRANCE	26 NOV	106.7	34.3	1621	523	
1965 096D		1996	FRANCE	26 NOV	103.0	34.2	1286	510	
1965 098A	ALOUETTE 2	1804	CANADA	29 NOV	118.7	79.8	2744	502	
1965 098B	EXPLORER 31	1806	US	29 NOV	120.3	79.8	2888	501	
1965 098C		1807	US	29 NOV	119.3	79.8	2793	502	
1965 098D		1808	US	29 NOV	109.0	79.8	1873	484	
1965 098E		1944	US	29 NOV	108.2	79.8	1797	484	
1965 098F		1948	US	29 NOV	114.6	79.9	2376	500	
1965 098G		1951	US	29 NOV	115.1	79.7	2423	492	
1965 098H		2092	US	29 NOV	119.0	79.9	2765	504	
1965 098J		2153	US	29 NOV	118.8	79.7	2749	501	
1965 101A	FR-1	1814	FRANCE	6 DEC	99.1	75.9	719	709	
1965 101B		1915	US	6 DEC	98.9	75.9	711	701	
1965 105A	PIONEER 6	1841	US	16 DEC	HELIOCENTRIC ORBIT				
1965 105A	COSMOS 100	1843	USSR	17 DEC	95.9	65.0	629	496	
1965 106A		1844	USSR	17 DEC	95.6	65.0	560	533	
1965 109A	NSS 30060	1864	US	22 DEC	104.7	89.1	1062	896	
1965 109B		1865	US	22 DEC	104.8	89.1	1066	899	
1965 109C		2086	US	22 DEC	101.3	89.1	842	793	
1965 109D		2226	US	22 DEC	106.9	89.1	1273	888	
1965 109E		2353	US	22 DEC	105.0	89.4	1111	876	
1965 1120		1937	USSR	28 DEC	95.1	55.9	542	506	

1966 LAUNCHES

1966 005A	NSS 30070	1952	US	28 JAN	105.6	89.8	1190	850	
1966 005B		1953	US	28 JAN	105.7	89.8	1196	853	
1966 005C		2140	US	28 JAN	107.3	90.1	1352	849	
1966 005D		2141	US	28 JAN	103.5	89.8	1033	818	
1966 005E		2889	US	28 JAN	109.4	89.5	1326	1071	
1966 005F		2989	US	28 JAN	103.7	89.9	1028	838	
1966 005J		11991	US	28 JAN	105.3	89.8	1168	844	
1966 005M		19366	US	28 JAN	98.9	89.8	746	664	
1966 006D		2001	USSR	31 JAN	HELIOCENTRIC ORBIT				
1966 006A	ESSA 1	1982	US	3 FEB	99.8	97.9	813	686	
1966 008B		1983	US	3 FEB	99.5	97.9	803	668	
1966 008C		2085	US	3 FEB	97.3	97.7	651	610	
1966 008D		2118	US	3 FEB	100.5	98.0	895	671	
1966 008E		2154	US	3 FEB	99.4	97.7	776	682	
1966 013A	D-1A	2016	FRANCE	17 FEB	116.4	34.1	2535	504	
1966 013B		2017	FRANCE	17 FEB	115.4	34.1	2446	503	
1966 013F		2023	FRANCE	17 FEB	100.6	34.0	1135	440	

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OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ. (MHZ)	NOTES
1966 LAUNCHES (CONT.)										
1966 013G		2161	FRANCE	17 FEB	110.2	34.1	1967	504		
1966 016A	ESSA 2	2091	US	28 FEB	113.4	100.9	1412	1352		
1966 016B		2096	US	28 FEB	113.4	101.0	1412	1351		
1966 016C		2223	US	28 FEB	111.8	101.2	1382	1237		
1966 016D		2224	US	28 FEB	115.0	101.2	1562	1346		
1966 016E		6214	US	28 FEB	114.2	101.6	1514	1328		
1966 024A	NNSS 30080	2119	US	26 MAR	105.0	89.8	1100	884		
1966 024B		2120	US	26 MAR	105.1	89.8	1107	886		
1966 025A	OVI-4	2121	US	30 MAR	104.0	144.5	1010	885		
1966 025B	OVI-5	2122	US	30 MAR	105.6	144.6	1058	985		
1966 025C		2123	US	30 MAR	105.6	144.6	1058	986		
1966 025D		2124	US	30 MAR	104.0	144.5	1008	886		
1966 025E		3611	US	30 MAR	103.1	144.6	958	850		
1966 025G		5361	US	30 MAR	104.0	144.6	983	912		
1966 025H		5599	US	30 MAR	103.1	144.6	954	857		
1966 026A		2125	US	31 MAR	99.6	98.5	871	609		
1966 026B		2129	US	31 MAR	98.1	98.2	763	574		
1966 026D		2177	US	31 MAR	100.6	98.9	971	601		
1966 026F		2179	US	31 MAR	96.9	98.1	677	544		
1966 027A	LUNA 10	2126	USSR	31 MAR	SELENOCENTRIC ORBIT					
1966 027D		2130	USSR	31 MAR	HELIOCENTRIC ORBIT					
1966 027E		2131	USSR	31 MAR	BARYCENTRIC ORBIT					
1966 027F		2132	USSR	31 MAR	BARYCENTRIC ORBIT					
1966 031A	OAO 1	2142	US	8 APR	100.7	35.0	796	786		
1966 031B		2144	US	8 APR	100.4	35.0	783	770		
1966 034A	OVI-1	2150	US	22 APR	135.9	82.4	4414	342		
1966 034B		2167	US	22 APR	119.1	82.4	2950	329		
1966 040A	NIMBUS 2	2173	US	15 MAY	108.0	100.5	1175	1091		
1966 040B		2174	US	15 MAY	107.8	100.6	1167	1081		
1966 041A	NNSS 30090	2176	US	19 MAY	102.9	90.0	957	837		
1966 041B		2180	US	19 MAY	103.1	90.0	965	841		
1966 041C		2225	US	19 MAY	99.4	89.9	759	702		
1966 041D		2644	US	19 MAY	105.1	90.0	1162	834		
1966 041E		3591	US	19 MAY	103.0	90.0	957	838		
1966 041F		4555	US	19 MAY	102.1	90.0	909	803		
1966 045B		2137	US	30 MAY	BARYCENTRIC ORBIT					
1966 049A	OGO 3	2195	US	7 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1966 052A		2201	US	10 JUN	142.9	40.8	4709	645		
1966 052B		2206	US	10 JUN	142.6	40.8	4682	647		
1966 052C		2498	US	10 JUN	139.0	40.6	4435	587		
1966 052D		2516	US	10 JUN	144.9	40.7	4586	933		
1966 053A		2207	US	16 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1966 053B		2215	US	16 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1966 053C		2216	US	16 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1966 053D		2217	US	16 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1966 053E		2218	US	16 JUN	1338.6	8.0	34017	33694		
1966 053F		2219	US	16 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1966 053G		2220	US	16 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1966 053H		2221	US	16 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1966 053J		2222	US	16 JUN	1349.4	11.9	34728	33415		

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INTER- NATIONAL DESIGNATION		NAME	OBJECTS IN ORBIT										NOTES
1966 LAUNCHES (CONT.)			CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLT- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)			
1966 056A	PAGEOS 1		2253	US	24 JUN	177.1	84.8	5941	2192				
1966 056B			2255	US	24 JUN	181.1	86.9	4277	4175				
1966 056C			2256	US	24 JUN	181.3	86.9	4271	4195				
1966 056D			2511	US	24 JUN	181.5	87.0	4254	4224				
1966 056E			8064	US	24 JUN	177.7	84.3	6016	2168				
1966 056G			8066	US	24 JUN	160.7	81.9	6372	450				
1966 056H			8074	US	24 JUN	175.2	83.3	6963	1026				
1966 056AH			9468	US	24 JUN	179.9	84.8	5436	2920				
1966 058A	EXPLODER 33		2258	US	1 JUL	CURRENT ELEMENTS NOT MAINTAINED							
1966 058C			2260	US	1 JUL	CURRENT ELEMENTS NOT MAINTAINED							
1966 063B			2327	US	14 JUL	104.2	144.2	973	943				
1966 063C			2328	US	14 JUL	105.2	144.2	1012	999				
1966 063D			2329	US	14 JUL	104.7	144.2	984	974				
1966 063E			2337	US	14 JUL	105.2	144.2	1007	999				
1966 070A	OV3-3		2389	US	4 AUG	124.5	81.4	3412	350				
1966 070B			2404	US	4 AUG	103.9	81.4	1566	321				
1966 070D			2400	US	4 AUG	128.6	81.5	3706	413				
1966 073B			2395	US	10 AUG	BARYCENTRIC ORBIT							
1966 075A	PIONEER 7		2398	US	17 AUG	HELIOCENTRIC ORBIT							
1966 075C			2402	US	17 AUG	HELIOCENTRIC ORBIT							
1966 076A	NSS 30100		2401	US	18 AUG	106.5	88.9	1091	1039				
1966 076B			2413	US	18 AUG	106.6	88.9	1093	1044				
1966 076C			2580	US	18 AUG	104.9	89.2	1062	916				
1966 076D			2702	US	18 AUG	108.0	89.6	1199	1070				
1966 077A			2403	US	19 AUG	167.4	89.7	3707	3660				
1966 077B	SECOR (EGRS) 7		2411	US	19 AUG	167.5	89.7	3697	3674				
1966 077C	ERS 15		2412	US	19 AUG	167.6	89.7	3698	3681				
1966 078A	LUNA 11		2406	USSR	24 AUG	SELENOCENTRIC ORBIT							
1966 082A			2418	US	16 SEP	100.3	98.5	865	678				
1966 082B			2422	US	16 SEP	100.2	98.5	860	676				
1966 084B			2426	US	20 SEP	BARYCENTRIC ORBIT							
1966 087A	ESSA J		2435	US	2 OCT	114.5	101.0	1483	1384				
1966 087B			2436	US	2 OCT	114.5	101.1	1482	1381				
1966 087C			2518	US	2 OCT	115.9	100.8	1558	1430				
1966 087D			2775	US	2 OCT	113.2	101.0	1471	1277				
1966 087E			6213	US	2 OCT	113.1	101.8	1387	1352				
1966 087F			8791	US	2 OCT	CURRENT ELEMENTS NOT MAINTAINED							
1966 089A			2481	US	5 OCT	167.5	90.1	3720	3657				
1966 089B	SECOR (EGRS) 8		2520	US	5 OCT	167.6	90.1	3706	3675				
1966 094A	LUNA 12		2508	USSR	22 OCT	SELENOCENTRIC ORBIT							
1966 095B			2513	US	25 OCT	BARYCENTRIC ORBIT							
1966 096A	INTELSAT 2 F-1		2514	USSR	26 OCT	717.2	18.5	37092	3233				
1966 096C			11792	US	26 OCT	489.6	17.7	28031	366				
1966 110A	ATS 1		2608	US	7 DEC	1434.6	13.5	35775	35740				
1966 111A	OV1-9		2610	US	11 DEC	140.4	99.1	4663	474				
1966 111B	OV1-10		2611	US	11 DEC	97.0	93.4	660	573				
1966 111C			2621	US	11 DEC	98.0	93.4	717	611				
1966 111D			2622	US	11 DEC	139.7	99.1	4611	473				
1967 LAUNCHES													

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1967 001A	INTELSAT 2 F-2	2639	ITSO	11 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1967 001D		2643	US	11 JAN	438.5	26.9	25158	322		
1967 001S		5987	US	11 JAN	518.3	26.1	29555	437		
1967 001T		5988	US	11 JAN	531.8	26.5	30127	603		
1967 001V		5990	US	11 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1967 001W		5998	US	11 JAN	399.9	29.6	22959	247		
1967 001X		6779	US	11 JAN	656.6	28.1	36624	669		
1967 001AM		14756	US	11 JAN	388.9	26.6	22280	259		
1967 001AN		19518	US	11 JAN	516.2	26.5	29340	536		
1967 001AR		20102	US	11 JAN	266.7	26.4	14465	229		
1967 003A		2645	US	18 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1967 003B		2649	US	18 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1967 003C		2650	US	18 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1967 003D		2651	US	18 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1967 003E		2652	US	18 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1967 003F		2653	US	18 JAN	896.7	6.5	30446	18403		
1967 003G		2654	US	18 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1967 003H		2655	US	18 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1967 003J		2660	US	18 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1967 006A	ESSA 4	2657	US	26 JAN	113.4	102.1	1437	1323		
1967 006B		2661	US	26 JAN	113.5	101.9	1439	1339		
1967 006C		2706	US	26 JAN	114.2	102.0	1446	1391		
1967 006D		2707	US	26 JAN	112.6	101.9	1458	1228		
1967 006E		5971	US	26 JAN	113.1	102.0	1454	1280		
1967 010A		2669	US	8 FEB	101.1	99.1	850	775		
1967 010B		2741	US	8 FEB	101.1	99.0	854	770		
1967 011A		2674	FRANCE	8 FEB	101.9	40.0	1141	551		
1967 011B		2671	FRANCE	8 FEB	102.7	40.0	1212	559		
1967 011H		2689	FRANCE	8 FEB	94.2	39.9	545	416		
1967 014A	DIADEME 2	2680	FRANCE	15 FEB	109.0	39.4	1774	587		
1967 014B		2682	FRANCE	15 FEB	109.4	39.4	1815	584		
1967 014C		2684	FRANCE	15 FEB	107.3	40.0	1625	580		
1967 014F		2685	FRANCE	15 FEB	106.5	39.0	1560	564		
1967 014J		14505	FRANCE	15 FEB	108.3	38.8	1716	580		
1967 014K		14633	FRANCE	15 FEB	100.3	39.4	1024	520		
1967 014L		15531	FRANCE	15 FEB	100.1	39.4	1009	521		
1967 014M		18911	FRANCE	15 FEB	111.4	38.8	1998	586		
1967 014N		18928	FRANCE	15 FEB	100.4	39.4	1029	527		
1967 014P		18929	FRANCE	15 FEB	100.7	39.4	1053	527		
1967 026A	INTELSAT 2 F-3	2717	ITSO	23 MAR	CURRENT ELEMENTS NOT MAINTAINED					
1967 027A		2720	USSR	24 MAR	93.6	56.0	460	442		
1967 034A		2754	US	14 APR	106.3	90.2	1065	1040		
1967 034B		2755	US	14 APR	106.4	90.2	1072	1045		
1967 034C		2777	US	14 APR	103.4	90.2	1025	817		
1967 034D		2778	US	14 APR	108.3	90.2	1244	1048		
1967 034E		4843	US	14 APR	106.7	90.4	1093	1049		
1967 035B		2764	US	17 APR	BARYCENTRIC ORBIT					
1967 036A		2757	US	20 APR	113.5	101.9	1419	1352		
1967 036B		2758	US	20 APR	113.5	102.0	1418	1354		
1967 036C	ESSA 5	2976	US	20 APR	112.3	102.2	1408	1256		

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OBJECTS IN ORBIT

INTER-NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1967 LAUNCHES (CONT.)										
1967 0360		2977	US	20 APR	114.6	101.3	1481	1388		
1967 0398		2763	USSR	27 APR	93.9	81.2	491	435		
1967 040A		2765	US	28 APR	CURRENT ELEMENTS NOT MAINTAINED					
1967 040B		2766	US	28 APR	CURRENT ELEMENTS NOT MAINTAINED					
1967 040C	ERS 18	2767	US	28 APR	CURRENT ELEMENTS NOT MAINTAINED					
1967 040D	ERS 20	2768	US	28 APR	CURRENT ELEMENTS NOT MAINTAINED					
1967 040E	ERS 27	2769	US	28 APR	CURRENT ELEMENTS NOT MAINTAINED					
1967 040F		2770	US	28 APR	CURRENT ELEMENTS NOT MAINTAINED					
1967 043B		2780	US	9 MAY	95.3	84.9	589	479		
1967 045A	COSMOS 158	2801	USSR	15 MAY	100.3	74.0	813	730		
1967 045B		2802	USSR	15 MAY	100.2	74.0	818	712		
1967 045C		2823	USSR	15 MAY	97.1	74.0	644	600		
1967 048A	NNSS 30130	2807	US	18 MAY	106.8	89.6	1090	1061		
1967 048B		2811	US	18 MAY	106.8	89.6	1091	1064		
1967 048C		17723	US	18 MAY	104.3	89.7	978	940		
1967 048D		19222	US	18 MAY	104.9	89.6	1019	961		
1967 053A		2826	US	31 MAY	102.0	70.0	859	844		
1967 053B		2825	US	31 MAY	103.2	70.0	913	905		
1967 053C	GRAVITY GRADIENT 4	2828	US	31 MAY	103.2	70.0	913	905		
1967 053D	GRAVITY GRADIENT 5	2834	US	31 MAY	103.2	70.0	915	907		
1967 053E		2847	US	31 MAY	103.0	70.0	905	898		
1967 053F		2872	US	31 MAY	103.1	70.0	910	903		
1967 053G		2973	US	31 MAY	103.2	70.0	913	904		
1967 053H		2974	US	31 MAY	103.2	70.0	914	907		
1967 053J		2909	US	31 MAY	101.8	70.0	846	834		
1967 053K		19245	US	31 MAY	103.0	70.0	902	895		
1967 060A	MARINER 5	2845	US	14 JUN	HELIOCENTRIC ORBIT					
1967 060B		2846	US	14 JUN	HELIOCENTRIC ORBIT					
1967 065A	SECOR (EGRS) 9	2846	US	29 JUN	172.1	90.0	3947	3791		
1967 065B	AURORA 1	2876	US	29 JUN	172.1	90.0	3949	3790		
1967 065C		2877	US	29 JUN	172.1	90.0	3952	3786		
1967 066A	TITAN 3 C-14	2862	US	1 JUL	1309.7	1.2	33540	33010		
1967 066B		2863	US	1 JUL	1310.4	1.2	33549	33030		
1967 066C		2864	US	1 JUL	1311.8	3.2	33553	33080		
1967 066D		2865	US	1 JUL	1313.7	4.3	33563	33147		
1967 066E		2866	US	1 JUL	1316.1	9.5	33616	33190		
1967 066F		2867	US	1 JUL	1318.9	5.2	33659	33270		
1967 066G	DODGE	2868	US	1 JUL	1319.1	9.5	33651	33277		
1967 068B		2883	US	14 JUL	BARYCENTRIC ORBIT					
1967 070A	EXPLORER 35	2884	US	19 JUL	SELENOCENTRIC ORBIT					
1967 075B		2908	US	1 AUG	BARYCENTRIC ORBIT					
1967 080A		2920	US	23 AUG	101.9	99.1	876	820		
1967 080B		2940	US	23 AUG	101.8	99.0	874	817		
1967 084B	NNSS 30140	2938	US	8 SEP	BARYCENTRIC ORBIT					
1967 092A		2965	US	25 SEP	106.5	89.2	1101	1031		
1967 092B		2967	US	25 SEP	106.6	89.2	1101	1033		
1967 092C		2994	US	25 SEP	103.8	89.4	1012	866		
1967 092D		3122	US	25 SEP	108.9	89.1	1319	1031		
1967 092G		17176	US	25 SEP	103.9	89.2	964	918		
1967 092H		20009	US	25 SEP	103.9	89.2	968	918		

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INTER- NATIONAL DESIGNATION	NAME	OBJECTS IN ORBIT					TRANSMITTING FREQ.(MHZ)	NOTES	
		CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION			APOGEE KM.
1967 LAUNCHES (CONT.)									
1967 094A	INTELSAT 2 F-4	2969	ITSO	28 SEP	1435.0	13.2	35810	35721	
1967 094C		2971	US	28 SEP	CURRENT ELEMENTS NOT MAINTAINED				
1967 096A		2980	US	11 OCT	99.4	99.2	811	645	
1967 096J		2985	US	11 OCT	99.3	99.1	802	643	
1967 102B		3011	USSR	24 OCT	94.1	81.2	521	428	
1967 104B		3019	USSR	27 OCT	96.3	64.1	708	458	
1967 111A	ATS 3	3029	US	5 NOV	1436.1	13.1	42160	29412	
1967 112B		3034	US	7 NOV	BARYCENTRIC ORBIT				
1967 114A	ESSA 6	3035	US	10 NOV	114.8	102.2	1483	1406	
1967 114B		3036	US	10 NOV	114.8	102.2	1483	1408	
1967 114C		3051	US	10 NOV	114.1	101.4	1482	1343	
1967 114D		3123	US	10 NOV	115.4	102.5	1494	1449	
1967 114E		5443	US	10 NOV	114.6	101.5	1483	1387	
1967 116A	COSMOS 192	3047	USSR	23 NOV	99.3	74.0	731	722	
1967 116B		3048	USSR	23 NOV	99.2	74.0	727	717	
1967 123A	PIONEER 8	3066	US	13 DEC	HELIOCENTRIC ORBIT				
1967 127A	COSMOS 198	3081	USSR	27 DEC	103.4	65.1	948	887	

1963 LAUNCHES

1963 0019		3092	US	7 JAN	BARYCENTRIC ORBIT			
1963 002A	EXPLORER 36	3093	US	11 JAN	112.2	105.8	1572	1079
1963 002B		3094	US	11 JAN	112.1	105.8	1564	1078
1963 002C		3126	US	11 JAN	112.3	106.1	1581	1082
1963 002D		3127	US	11 JAN	112.1	105.3	1570	1074
1963 011A	COSMOS 203	3129	USSR	20 FEB	109.2	74.0	1199	1181
1963 011B		3131	USSR	20 FEB	109.2	74.1	1202	1180
1963 012A	NNSS 30180	3133	US	2 MAR	106.7	90.0	1132	1016
1963 012B		3137	US	2 MAR	106.8	90.1	1135	1017
1963 012C		3213	US	2 MAR	104.7	90.0	1086	877
1963 012D		3214	US	2 MAR	108.6	90.1	1304	1021
1963 012E		18594	US	2 MAR	103.2	90.0	971	845
1963 013A	ZOND 4	3134	USSR	2 MAR	HELIOCENTRIC ORBIT			
1963 014A	OSO 5	3138	US	4 MAR	CURRENT ELEMENTS NOT MAINTAINED			
1963 014B		3145	US	4 MAR	CURRENT ELEMENTS NOT MAINTAINED			
1963 017A	EXPLORER 37	3141	US	5 MAR	93.1	59.4	471	383
1963 017D		3328	US	5 MAR	96.4	59.6	647	522
1963 019B		3151	USSR	14 MAR	94.6	81.2	538	456
1963 023A	COSMOS 209	3158	USSR	22 MAR	103.1	65.3	938	867
1963 026A	OVI-13	3173	US	6 APR	198.9	100.0	9225	589
1963 026B	OVI-14	3174	US	6 APR	207.2	100.1	9849	595
1963 026C		3177	US	6 APR	207.2	100.1	9847	591
1963 026D		3212	US	6 APR	198.5	99.9	9187	596
1963 027A	LUNA 14	3178	USSR	7 APR	SELENOCENTRIC ORBIT			
1963 040A	COSMOS 220	3229	USSR	7 MAY	98.4	74.0	713	647
1963 040B		3230	USSR	7 MAY	98.1	74.0	702	637
1963 040C		3231	USSR	7 MAY	93.7	74.1	469	444
1963 042A		3266	US	23 MAY	101.9	99.0	886	807
1963 042B		3271	US	23 MAY	101.8	99.0	884	806
1963 049B		3283	USSR	12 JUN	92.9	81.2	443	389

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCL- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1963 LAUNCHES (CONT.)										
1968 050A		3284	US	13 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1963 050B		3285	US	13 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1968 050C		3286	US	13 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1968 050D		3287	US	13 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1963 050E		3288	US	13 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1963 050F		3289	US	13 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1968 050G		3290	US	13 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1968 050H		3291	US	13 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1968 050J		3292	US	13 JUN	CURRENT ELEMENTS NOT MAINTAINED					
EXPLORER 33										
1968 055A		3307	US	4 JUL	1363.7 12.1 35040 33674					
1963 055B		3315	US	4 JUL	224.2 120.9 5866 5829					
1968 055C		3848	US	4 JUL	155.8 120.7 5750 673					
1963 055D		4941	US	4 JUL	224.1 120.8 5869 5818					
1968 063A		3334	US	6 AUG	155.4 120.7 5797 594					
EXPLORER 40										
1968 066B		3338	US	8 AUG	CURRENT ELEMENTS NOT MAINTAINED					
1968 066C		3341	US	8 AUG	118.0 80.7 2499 679					
1968 066D		3342	US	8 AUG	117.8 80.6 2487 679					
1968 066E		3343	US	8 AUG	110.5 80.6 1854 646					
1968 066F		3390	US	8 AUG	107.9 80.6 1650 604					
1968 066G		3391	US	8 AUG	110.7 80.6 1855 665					
1968 066H		3392	US	8 AUG	110.2 80.7 1847 626					
1963 066J		3393	US	8 AUG	112.7 80.7 2016 682					
1968 069A	ESSA 7	3345	US	8 AUG	111.3 80.6 1912 661					
1968 069B		3346	US	16 AUG	114.9 101.4 1470 1429					
1968 069C		3416	US	16 AUG	114.8 101.3 1464 1426					
1968 069D		3417	US	16 AUG	113.6 101.9 1485 1300					
1968 069E		3975	US	16 AUG	116.1 102.4 1558 1454					
1968 069F		4499	US	16 AUG	114.9 102.0 1479 1420					
1968 069G		3429	US	16 AUG	114.9 101.6 1482 1414					
1968 081A	OV2-3	3430	US	26 SEP	115.1 101.4 1480 1435					
1968 081C	ERS 21	3431	US	26 SEP	1416.1 10.7 35752 35036					
1968 081D	LES 6	3432	US	26 SEP	CURRENT ELEMENTS NOT MAINTAINED					
1968 081E		3504	USSR	26 SEP	1435.3 11.2 36118 35422					
1968 091A	COSMOS 249	3504	USSR	26 SEP	1419.3 11.0 35869 35044					
1968 0919	- 91DP	3510	USSR	20 OCT	111.6 62.4 2082 515					
1963 092A		3510	US	20 OCT	SEE NOTE					
1968 092B		3522	US	23 OCT	101.1 98.5 833 786					
1968 097A	COSMOS 252	3530	USSR	23 OCT	101.0 98.6 829 783					
1968 097B	- 097EU	3533	USSR	1 NOV	112.1 62.3 2089 557					
1968 100A	PIONEER 9	3576	US	1 NOV	SEE NOTE					
1968 106B	COSMOS 250	3577	USSR	8 NOV	HELIOCENTRIC ORBIT					
1968 106B		3597	US	30 NOV	109.3 74.0 1221 1169					
1963 110A	3A0-42	3598	US	7 DEC	109.2 74.0 1216 1161					
1963 110B		3598	US	7 DEC	100.0 35.0 764 754					
1963 112B		3605	US	7 DEC	99.8 35.0 787 705					
1963 112C		3617	US	12 DEC	114.3 80.4 1466 1379					
1963 112D		3618	US	12 DEC	114.0 80.2 1446 1371					
1968 112E		3940	US	12 DEC	114.7 80.5 1508 1373					
1968 114A	ESSA 8	3615	US	12 DEC	114.4 80.6 1453 1404					
1968 114B		3616	US	15 DEC	114.6 101.6 1461 1411					
1968 114B		3616	US	15 DEC	115.0 101.7 1467 1446					

10*

8*

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES	
1968 LAUNCHES (CONT.)											
1968 114C		3811	US	15 DEC	112.8	102.0	1462	1248			
1968 114D		3812	US	15 DEC	116.3	102.5	1571	1458			
1968 116A	INTELSAT 3 F-2	3623	ITSO	19 DEC	1475.2	13.4	37132	35263			
1968 118B		3627	US	21 DEC	HELIOCENTRIC ORBIT						
1969 LAUNCHES											
1969 009A	ISIS 1	3669	CANADA	30 JAN	127.8	88.5	3479	576			
1969 009B		3670	US	30 JAN	127.0	88.5	3407	572			
1969 010B		3673	US	5 FEB	114.0	80.4	1429	1392			
1969 010C		3841	US	5 FEB	113.7	80.2	1421	1368			
1969 011A	INTELSAT 3 F-3	3674	ITSO	6 FEB	CURRENT ELEMENTS NOT MAINTAINED						
1969 011B		5977	US	6 FEB	CURRENT ELEMENTS NOT MAINTAINED						
1969 013A		3691	US	9 FEB	CURRENT ELEMENTS NOT MAINTAINED						
1969 013B		3692	US	9 FEB	CURRENT ELEMENTS NOT MAINTAINED						
1969 014A	MARINER 6	3759	US	25 FEB	HELIOCENTRIC ORBIT						
1969 014B		3760	US	25 FEB	HELIOCENTRIC ORBIT						
1969 016A	ESSA 9	3764	US	26 FEB	115.2	101.5	1502	1423			
1969 016B		3767	US	26 FEB	115.1	101.5	1498	1418			
1969 018B		3770	US	3 MAR	HELIOCENTRIC ORBIT						
1969 024A	COSMOS 272	3818	USSR	17 MAR	109.2	74.0	1206	1176			
1969 024B		3819	USSR	17 MAR	109.1	74.0	1194	1177			
1969 024C		6289	USSR	17 MAR	108.9	74.0	1184	1165			
1969 025C	OV1-19	3825	US	18 MAR	151.8	104.8	5622	477			
1969 025E		3827	US	18 MAR	150.9	104.8	5531	489			
1969 029A	METEOR	3835	USSR	26 MAR	96.5	81.2	610	575			
1969 030A	MARINER 7	3837	US	27 MAR	HELIOCENTRIC ORBIT						
1969 030B		3845	US	27 MAR	HELIOCENTRIC ORBIT						
1969 036A		3889	US	13 APR	CURRENT ELEMENTS NOT MAINTAINED						
1969 037A	NIMBUS 3	3890	US	14 APR	107.3	99.9	1128	1070			
1969 037B	SECOR (EGRS) 13	3891	US	14 APR	107.2	99.9	1127	1069			
1969 037C		3892	US	14 APR	107.3	100.0	1132	1073			
1969 043B		3943	US	18 MAY	HELIOCENTRIC ORBIT						
1969 043C	LM/DSCENT	3948	US	18 MAY	SELENOCENTRIC ORBIT						
1969 043D	LM/ASCENT	3949	US	18 MAY	SELENOCENTRIC ORBIT						
1969 045A	INTELSAT 3 F-4	3947	ITSO	22 MAY	CURRENT ELEMENTS NOT MAINTAINED						
1969 046A	OV5-5/ERS-29	3950	US	23 MAY	CURRENT ELEMENTS NOT MAINTAINED						
1969 046B	OV5-6	3951	US	23 MAY	CURRENT ELEMENTS NOT MAINTAINED						
1969 046C	OV5-9	3952	US	23 MAY	CURRENT ELEMENTS NOT MAINTAINED						
1969 046D		3954	US	23 MAY	CURRENT ELEMENTS NOT MAINTAINED						
1969 046E		3955	US	23 MAY	CURRENT ELEMENTS NOT MAINTAINED						
1969 046F		3956	US	23 MAY	CURRENT ELEMENTS NOT MAINTAINED						
1969 053B		3993	US	21 JUN	CURRENT ELEMENTS NOT MAINTAINED						
1969 059B		4040	US	16 JUL	HELIOCENTRIC ORBIT						
1969 059C	LUNAR MODULE	4041	US	16 JUL	SELENOCENTRIC ORBIT						
1969 062A		4047	US	23 JUL	101.0	98.9	839	771			
1969 062B		4048	US	23 JUL	100.9	98.8	834	768			
1969 064C		4053	US	26 JUL	127.2	30.4	3734	265			
1969 069A	ATS 5	4068	US	12 AUG	1447.4	12.3	36019	35998			
1969 069B		4069	US	12 AUG	703.3	17.7	37283	2354			

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OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1969 LAUNCHES (CONT.)										
1969 069C		5991	US	12 AUG	682.2	17.2	36457	2086		
1969 070A	COSMOS 292	4070	USSR	13 AUG	99.5	74.0	740	725		
1969 070B		4071	USSR	13 AUG	99.2	74.0	730	707		
1969 070C		4084	USSR	13 AUG	99.8	74.1	763	730		
1969 070D		18912	USSR	13 AUG	98.9	74.0	744	670		
1969 082B		4256	US	30 SEP	103.2	70.0	922	896		
1969 082C		4257	US	30 SEP	103.3	70.0	927	900		
1969 082D		4259	US	30 SEP	103.3	70.0	929	901		
1969 082E		4237	US	30 SEP	103.3	70.0	927	900		
1969 082F		4247	US	30 SEP	103.3	70.0	927	900		
1969 082G		4295	US	30 SEP	103.3	70.0	927	900		
1969 082H		4168	US	30 SEP	103.3	70.0	926	900		
1969 082J		4166	US	30 SEP	101.7	70.0	850	828		
1969 082K		4132	US	30 SEP	102.5	70.0	887	862		
1969 082L	- 082LF		US	30 SEP	SEE NOTE	11*				11*
1969 084A	METEOR	4119	USSR	6 OCT	96.1	81.2	591	553		
1969 084B		4120	USSR	6 OCT	95.6	81.2	609	486		
1969 091A	COSMOS 304	4138	USSR	21 OCT	99.7	74.0	751	733		
1969 091B		4139	USSR	21 OCT	99.1	74.0	719	712		
1969 097A	GRS-A/AZUR	4221	FRG	8 NOV	113.2	102.8	2368	377		
1969 097B		4222	US	8 NOV	106.2	102.8	1738	365		
1969 097B		4226	US	14 NOV	106.2	102.8				
1969 099B		4250	UK	22 NOV	1436.1	11.9	35882	35601		
1969 101A	SKYNET A	4251	US	22 NOV	CURRENT	ELEMENTS NOT MAINTAINED				
1969 103A	COSMOS 312	4254	USSR	24 NOV	108.5	74.0	1173	1139		
1969 103B		4255	USSR	24 NOV	108.3	74.0	1157	1139		
1970 LAUNCHES										
1970 003A	INTELSAT 3 F-6	4297	ITSD	15 JAN	CURRENT	ELEMENTS NOT MAINTAINED				
1970 003B		4298	US	15 JAN	539.9	27.8	30819	351		
1970 008A	ITOS 1	4320	US	23 JAN	115.0	101.4	1477	1432		
1970 008B	OSCAR 5	4321	AUSTR	23 JAN	115.0	101.4	1476	1431		
1970 008C		4322	US	23 JAN	115.0	101.4	1477	1432		
1970 009A	SERT 2	4327	US	4 FEB	106.0	99.1	1045	1038		
1970 011A	OHSUMI	4330	JAPAN	11 FEB	121.0	31.1	3122	331		
1970 012A		4331	US	11 FEB	100.9	99.0	846	763		
1970 012B		4332	US	11 FEB	100.9	98.8	850	756		
1970 021A	NATO 1	4353	NATO	20 MAR	1436.3	11.3	35800	35779		
1970 021B		4354	US	20 MAR	576.1	26.1	32631	483		
1970 021C		5975	US	20 MAR	557.7	25.7	31820	312		
1970 025A	NIMBUS 4	4362	US	8 APR	107.1	99.8	1097	1085		
1970 025B	TOPO 1	4363	US	8 APR	106.9	99.6	1085	1082		
1970 025C	- 0250F		US	8 APR	SEE NOTE	12*				12*
1970 027A		4366	US	8 APR	CURRENT	ELEMENTS NOT MAINTAINED				
1970 027B		4368	US	8 APR	CURRENT	ELEMENTS NOT MAINTAINED				
1970 028A	COSMOS 332	4369	USSR	11 APR	99.6	74.0	742	732		
1970 028B		4370	USSR	11 APR	99.3	74.0	736	711		
1970 028C		14814	USSR	11 APR	99.2	74.0	726	715		
1970 032A	INTELSAT 3 F-7	4376	ITSD	23 APR	CURRENT	ELEMENTS NOT MAINTAINED				

OBJECTS IN ORBIT											
INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PFRIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES	
1970 LAUNCHES (CONT.)											
1970 032B		4377	US	23 APR							
1970 034A	MAJ 1	4382	PRC	24 APR	112.2	69.4	2215	436			
1970 034B		4392	PRC	24 APR	104.2	63.4	1494	420			
1970 036A	COSMOS 336	4393	USSR	25 APR	115.4	74.0	1484	1461			
1970 036B	COSMOS 337	4394	USSR	25 APR	116.2	74.0	1550	1466			
1970 036C	COSMOS 338	4395	USSR	25 APR	115.8	74.0	1516	1465			
1970 036D	COSMOS 339	4396	USSR	25 APR	115.0	74.0	1467	1443			
1970 036E	COSMOS 340	4397	USSR	25 APR	114.6	74.0	1468	1405			
1970 036F	COSMOS 341	4398	USSR	25 APR	113.9	74.0	1466	1340			
1970 036G	COSMOS 342	4399	USSR	25 APR	113.5	74.0	1466	1308			
1970 036H	COSMOS 343	4390	USSR	25 APR	114.2	74.0	1466	1372			
1970 036J		4391	USSR	25 APR	116.6	74.0	1585	1466			
1970 037A	METEOR	4393	USSR	28 APR	96.6	81.2	620	570			
1970 037B		4394	USSR	28 APR	97.1	81.2	699	537			
1970 046A		4418	US	19 JUN	CURRENT ELEMENTS NOT MAINTAINED						
1970 046B		4511	US	19 JUN	CURRENT ELEMENTS NOT MAINTAINED						
1970 047A	METEOR	4419	USSR	23 JUN	101.9	81.2	875	817			
1970 047B		4420	USSR	23 JUN	102.1	81.2	922	791			
1970 055A	INTELSAT 3 F-3	4478	ITSU	23 JUL	1408.2	13.1	48488	21987			
1970 055B		4436	US	23 JUL	CURRENT ELEMENTS NOT MAINTAINED						
1970 062A	SKYNET B	4493	UK	19 AUG	CURRENT ELEMENTS NOT MAINTAINED						
1970 064A	COSMOS 358	4497	USSR	20 AUG	90.5	74.0	304	207			
1970 067A	NNSS 30190	4507	US	27 AUG	106.7	90.1	1205	945			
1970 067B		4515	US	27 AUG	106.8	90.1	1209	947			
1970 067C		5036	US	27 AUG	103.2	90.1	928	888			
1970 067D		5447	US	27 AUG	109.2	90.1	1436	946			
1970 069A		4510	US	1 SEP	CURRENT ELEMENTS NOT MAINTAINED						
1970 070A		4512	US	3 SEP	100.8	98.8	845	745			
1970 070B		4513	US	3 SEP	100.8	98.9	850	746			
1970 079A	COSMOS 367	4564	USSR	3 OCT	104.5	65.3	1006	932			
1970 083A	COSMOS 371	4578	USSR	12 OCT	99.4	74.0	734	729			
1970 083B		4593	USSR	12 OCT	99.2	74.0	730	712			
1970 085A	METEOR	4583	USSR	15 OCT	95.4	81.2	542	533			
1970 085B		4584	USSR	15 OCT	95.7	81.2	611	496			
1970 086A	COSMOS 372	4588	USSR	16 OCT	100.5	74.1	790	771			
1970 086B		4589	USSR	16 OCT	100.3	74.0	787	755			
1970 086C		5357	USSR	16 OCT	99.1	74.0	722	709			
1970 086D		5358	USSR	16 OCT	99.7	74.1	749	740			
1970 089A	COSMOS 374	4594	USSR	23 OCT	108.1	63.0	1696	581			
1970 089B - 0890G				SEE NOTE	13#						13#
1970 091A	COSMOS 375	4598	USSR	30 OCT	111.4	62.8	2060	522			
1970 091B - 091AX				SEE NOTE	15#						15#
1970 093A		4630	US	6 NOV	1198.1	15.7	36094	25883			
1970 093B		4632	US	6 NOV	1197.7	15.7	36102	25860			
1970 102A	COSMOS 381	4783	USSR	2 DEC	104.8	74.0	1006	961			
1970 102B		4784	USSR	2 DEC	104.7	74.0	997	958			
1970 102C		4840	USSR	2 DEC	100.9	74.0	806	793			
1970 102D		5225	USSR	2 DEC	104.1	74.0	967	940			
1970 102E		8764	USSR	2 DEC	104.3	74.0	978	941			
1970 102F		9794	USSR	2 DEC	101.6	74.0	839	829			

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OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLIN- ATION	ADOGEE KM.	PERIGEE KM.	TRANSMITTING FRQ.(MHZ)	NOTES
1970 LAUNCHES (CONT.)										
1970 103A	COSMOS 382	4786	USSR	2 DEC	171.0	55.9	5247	2406		
1970 103B		4789	USSR	2 DEC	158.8	51.6	5066	1586		
1970 103C		4790	USSR	2 DEC	159.1	51.6	5089	1607		
1970 103D		5316	USSR	2 DEC	144.4	55.7	4667	809		
1970 103E		12854	USSR	2 DEC	148.4	50.3	3810	2001		
1970 106A	NOAA 1	4793	US	11 DEC	114.8	101.4	1471	1421		
1970 106B		4794	US	11 DEC	114.9	101.4	1478	1420		
1970 106C		8828	US	11 DEC	116.4	102.3	1542	1494		
1970 108A	COSMOS 385	4799	USSR	12 DEC	104.6	74.0	977	973		
1970 108B		4800	USSR	12 DEC	104.5	74.0	977	963		
1970 109B		4802	FRANCE	12 DEC	97.2	15.0	660	586		
1970 113A	COSMOS 389	4813	USSR	18 DEC	96.6	81.2	610	577		
1970 113B		4814	USSR	18 DEC	96.9	81.2	660	561		
1971 LAUNCHES										
1971 000A		4924	US	UNKN	95.6	18.0	906	192		14*
1971 003A	METEOR	4849	USSR	20 JAN	96.2	81.2	585	567		
1971 003B		4850	USSR	20 JAN	96.2	81.2	632	517		
1971 003C		18277	USSR	20 JAN	95.8	81.2	611	505		
1971 006A	INTELSAT 4 F-2	4881	ITSO	26 JAN	1457.0	10.5	36243	36143		
1971 006B		4892	US	26 JAN	653.6	27.3	36542	596		
1971 009A	NATO 2	4902	NATO	3 FEB	1436.1	11.6	35832	35742		
1971 009B		4903	US	3 FEB						
1971 009C		5936	US	3 FEB						
1971 009D		4922	USSR	9 FEB	95.7	65.8	565	541		
1971 010A	COSMOS 394	4952	JAPAN	16 FEB	106.1	29.7	1106	987		
1971 011A	TANSEI 1	5126	JAPAN	16 FEB	104.8	29.7	994	976		
1971 011B		4953	US	17 FEB	100.4	98.6	807	747		
1971 012A		4954	US	17 FEB	100.5	98.7	809	752		
1971 012B		4964	USSR	25 FEB	113.2	65.7	2178	571		
1971 015A	COSMOS 397		USSR	25 FEB						
1971 015B	- 015DV		USSR	25 FEB						
1971 016A	COSMOS 398	4966	USSR	26 FEB	131.9	51.5	4207	199		16*
1971 020A	COSMOS 400	5050	USSR	18 MAR	104.9	65.8	995	987		
1971 020B		5051	USSR	18 MAR	104.7	65.8	1012	951		
1971 020C		5052	USSR	18 MAR	104.9	65.8	995	984		
1971 021A		5053	US	21 MAR						
1971 021B		5054	US	21 MAR						
1971 021C		5104	CANADA	1 APR	113.5	89.2	1421	1355		
1971 024A	ISIS 2	5106	US	1 APR	113.5	88.3	1419	1352		
1971 024B		5350	US	1 APR	113.5	88.3	1421	1356		
1971 024C		5105	USSR	1 APR	104.9	65.0	1027	950		
1971 025A	COSMOS 402	5117	USSR	7 APR	97.2	81.2	628	619		
1971 028A	COSMOS 405	5119	USSR	7 APR	97.4	81.2	685	578		
1971 028B		5724	USSR	7 APR	96.8	81.2	609	600		
1971 028D		5142	USSR	17 APR	93.3	81.2	443	429		
1971 031A	METEOR	5143	USSR	17 APR	95.6	81.2	595	498		
1971 031B		5174	USSR	23 APR	100.7	74.0	804	776		
1971 035A	COSMOS 407	5175	USSR	23 APR	100.5	74.0	805	757		
1971 035B		5300	USSR	23 APR	100.0	74.0	767	747		

16*

14*

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCL- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1971 LAUNCHES (CONT.)										
1971 0350		5301	USSR	23 APR	100.3	74.0	784	753		
1971 038A	COSMOS 409	5180	USSR	28 APR	109.3	74.0	1209	1175		
1971 038B		5191	USSR	28 APR	109.0	74.0	1223	1140		
1971 039A		5204	US	5 MAY	ELEMENTS NOT AVAILABLE					
1971 039B		5205	US	5 MAY	ELEMENTS NOT AVAILABLE					
1971 041A	COSMOS 411	5210	USSR	7 MAY	113.8	74.0	1488	1313		
1971 041B	COSMOS 412	5211	USSR	7 MAY	116.1	74.0	1533	1477		
1971 041C	COSMOS 413	5212	USSR	7 MAY	115.7	74.0	1505	1472		
1971 041D	COSMOS 414	5213	USSR	7 MAY	115.1	74.0	1492	1424		
1971 041E	COSMOS 415	5214	USSR	7 MAY	115.4	74.0	1498	1448		
1971 041F	COSMOS 416	5215	USSR	7 MAY	114.4	74.0	1489	1363		
1971 041G	COSMOS 417	5216	USSR	7 MAY	114.1	74.0	1490	1341		
1971 041H	COSMOS 418	5217	USSR	7 MAY	114.8	74.0	1490	1307		
1971 041J		5218	USSR	7 MAY	116.8	74.0	1591	1485		
1971 045A	MARS 2	5234	USSR	19 MAY	AREOCENTRIC ORBIT					
1971 046A	COSMOS 422	5238	USSR	22 MAY	105.0	74.0	1003	982		
1971 046B		5239	USSR	22 MAY	104.8	74.0	994	970		
1971 049A	MARS 3	5252	USSR	28 MAY	AREOCENTRIC ORBIT					
1971 051A	MARINER 9	5261	US	30 MAY	AREOCENTRIC ORBIT					
1971 051B		5267	US	30 MAY	HELIOCENTRIC ORBIT					
1971 052A	COSMOS 426	5291	USSR	4 JUN	102.4	74.0	1375	365		
1971 052B		5282	USSR	4 JUN	103.0	74.0	1435	365		
1971 059A	METEOR	5327	USSR	16 JUL	94.3	81.2	487	481		
1971 059B		5328	USSR	16 JUL	95.8	81.2	608	504		
1971 063D	APOLLO 15 SUBSATELLITE	5377	US	26 JUL	SELENOCENTRIC ORBIT					
1971 067B		5397	US	7 AUG	101.7	87.6	903	777		
1971 067E	OVI-21	5398	US	7 AUG	101.3	87.6	873	762		
1971 067J		5405	US	7 AUG	99.0	87.6	751	672		
1971 067K		5395	US	7 AUG	101.2	87.6	868	761		
1971 067L		5399	US	7 AUG	99.2	87.6	758	684		
1971 067M		5400	US	7 AUG	99.1	87.6	753	680		
1971 067N		5384	US	7 AUG	101.5	87.6	892	764		
1971 069C		5426	USSR	12 AUG	100.0	49.6	847	669		
1971 071A	EOLE 1	5435	FRANCE	16 AUG	100.0	50.1	854	660		
1971 071B		5438	US	16 AUG	99.9	50.1	850	657		
1971 071C		5440	US	16 AUG	98.0	50.7	736	592		
1971 073B		5449	USSR	2 SEP	SELENOCENTRIC ORBIT					
1971 080A	SHINSEI	5495	JAPAN	28 SEP	113.1	32.1	1867	873		
1971 080B		5498	JAPAN	28 SEP	111.9	32.0	1757	870		
1971 082A	LUNA 19	5488	USSR	28 SEP	SELENOCENTRIC ORBIT					
1971 082C		5490	USSR	28 SEP	SELENOCENTRIC ORBIT					
1971 086A	COSMOS 444	5547	USSR	13 OCT	114.1	74.0	1506	1313		
1971 086B	COSMOS 445	5548	USSR	13 OCT	114.4	74.0	1509	1348		
1971 086C	COSMOS 446	5549	USSR	13 OCT	114.8	74.0	1510	1379		
1971 086D	COSMOS 447	5550	USSR	13 OCT	115.1	74.0	1512	1409		
1971 086E	COSMOS 448	5551	USSR	13 OCT	115.5	74.0	1515	1437		
1971 086F	COSMOS 449	5552	USSR	13 OCT	116.2	74.0	1539	1481		
1971 086G	COSMOS 450	5553	USSR	13 OCT	115.8	74.0	1527	1459		
1971 086H	COSMOS 451	5554	USSR	13 OCT	116.6	74.0	1571	1487		

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCL- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1971 LAUNCHES (CONT.)										
1971 086J		5555	USSR	13 OCT	117.3	74.0	1621	1501		
1971 087A		5557	US	14 OCT	101.2	99.1	857	777		
1971 087B		5556	US	14 OCT	101.4	99.0	872	778		
1971 089A		5560	US	17 OCT	100.0	92.7	772	744		
1971 093A	PROSPERO	5580	UK	28 OCT	104.9	82.0	1447	535		
1971 093B		5581	UK	28 OCT	105.0	82.0	1457	535		
1971 095A		5587	US	3 NOV	1436.0	11.4	35813	35754		
1971 095B		5588	US	3 NOV	1434.7	11.2	35765	35754		
1971 095C		5589	US	3 NOV	1481.7	11.9	37371	35977		
1971 096A	EXPLORER 45	5598	US	15 NOV	322.8	3.2	18149	272		
1971 099A	COSMOS 457	5614	USSR	20 NOV	109.4	74.0	1215	1181		
1971 099B		5615	USSR	20 NOV	109.3	74.0	1209	1175		
1971 110A		5678	US	14 DEC	ELEMENTS NOT AVAILABLE					
1971 110B		5679	US	14 DEC	ELEMENTS NOT AVAILABLE					
1971 110C		5680	US	14 DEC	ELEMENTS NOT AVAILABLE					
1971 110D		5681	US	14 DEC	ELEMENTS NOT AVAILABLE					
1971 110E		5692	US	14 DEC	ELEMENTS NOT AVAILABLE					
1971 111A	COSMOS 455	5683	USSR	15 DEC	104.8	74.0	1005	964		
1971 111B		5685	USSR	15 DEC	104.6	74.0	994	961		
1971 111B		5705	USSR	17 DEC	100.5	79.3	793	771		
1971 114A	COSMOS 468	5707	USSR	17 DEC	100.4	74.0	796	754		
1971 114B		5778	USSR	17 DEC	100.2	74.0	777	754		
1971 114C		5858	USSR	17 DEC	100.1	74.0	770	751		
1971 114D		5709	ITSO	20 DEC	1445.4	9.1	36007	35931		
1971 116A	INTELSAT 4 F-3	5721	USSR	25 DEC	104.7	64.5	1021	935		
1971 117A	COSMOS 469	5729	USSR	27 DEC	110.2	73.9	2084	391		
1971 119A	OREOL 1	5730	USSR	27 DEC	109.7	73.9	2041	388		
1971 119B		5731	USSR	29 DEC	102.5	81.3	913	839		
1971 120A	METEOR	5732	USSR	29 DEC	102.1	81.3	875	838		
1971 120B		8826	USSR	29 DEC	101.3	81.2	838	804		
1971 120C		8827	USSR	29 DEC	102.0	81.3	863	842		
1971 120D		15344	USSR	29 DEC	100.4	81.2	796	761		

1972 LAUNCHES

1972 003A	INTELSAT 4 F-4	5775	ITSO	23 JAN	1442.3	7.4	35943	35872		
1972 003B		5816	US	23 JAN	653.3	28.3	36486	639		
1972 007B		5836	USSR	14 FEB	SELENOCENTRIC ORBIT					
1972 009A	COSMOS 475	5846	USSR	25 FEB	104.7	74.0	995	962		
1972 009B		5847	USSR	25 FEB	104.4	74.0	990	945		
1972 010A		5851	US	1 MAR	ELEMENTS NOT AVAILABLE					
1972 010B		5854	US	1 MAR	ELEMENTS NOT AVAILABLE					
1972 011A	COSMOS 476	5852	USSR	1 MAR	94.3	81.2	488	481		
1972 011B		5853	USSR	1 MAR	95.2	81.2	564	489		
1972 012A	PIONEER 10	5860	US	3 MAR	SOLAR SYSTEM ESCAPE TRAJECTORY					
1972 012B		5861	US	3 MAR	HELIOCENTRIC ORBIT					
1972 016A		5903	US	24 MAR	101.4	99.0	863	785		
1972 016B		5904	US	24 MAR	101.3	98.9	858	786		
1972 018B		5905	USSR	25 MAR	109.1	83.0	1197	1169		
1972 019A	COSMOS 480	5907	USSR	25 MAR	108.9	83.0	1193	1159		

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INTER- NATIONAL DESIGNATION			OBJECTS IN ORBIT			PERIOD MINUTES			INCLIN- NATION			APOGEE KM.			PERIGEE KM.			TRANSMITTING FREQ.(MHZ)			NOTES		
1972 LAUNCHES (CONT.)			CATALOG NUMBER			SOURCE			LAUNCH			PERIOD MINUTES			INCLIN- NATION			APOGEE KM.			PERIGEE KM.		
1972 022A	METEOR		5917	USSR		30 MAR	102.3	81.2	881	855													
1972 022B			5918	USSR		30 MAR	102.5	81.2	920	833													
1972 023E			6073	USSR		31 MAR	164.5	52.1	6926	210													
1972 029A	PRO3NOZ		5941	USSR		14 APR	CURRENT ELEMENTS NOT MAINTAINED																
1972 031C	LUNAR MODULE		6005	US		16 APR	SELENCENTRIC ORBIT																
1972 035A	COSMOS 489		6019	USSR		6 MAY	104.7	74.0	997	961													
1972 035B			6020	USSR		6 MAY	104.5	74.0	986	955													
1972 041A			6052	ITSO		13 JUN	1438.7	8.4	35851	35825													
1972 041B			6058	US		13 JUN	651.1	27.2	36470	541													
1972 043A	COSMOS 494		6059	USSR		23 JUN	100.5	74.1	790	775													
1972 043B			6061	USSR		23 JUN	100.3	74.1	788	756													
1972 043C			6063	USSR		23 JUN	99.9	74.1	760	746													
1972 043D			6065	USSR		23 JUN	100.1	74.1	779	751													
1972 049A	METEOR		6079	USSR		30 JUN	102.7	81.2	895	878													
1972 049B			6080	USSR		30 JUN	102.8	81.2	928	857													
1972 049C			20348	USSR		30 JUN	102.8	81.2	929	856													
1972 057A	COSMOS 504		6117	USSR		20 JUL	113.9	74.0	1494	1319													
1972 057B	COSMOS 505		6118	USSR		20 JUL	114.3	74.0	1494	1350													
1972 057C	COSMOS 506		6119	USSR		20 JUL	114.6	74.0	1494	1380													
1972 057D	COSMOS 507		6120	USSR		20 JUL	114.9	74.0	1494	1409													
1972 057E	COSMOS 508		6121	USSR		20 JUL	115.3	74.0	1494	1440													
1972 057F	COSMOS 509		6122	USSR		20 JUL	115.6	74.0	1496	1471													
1972 057G	COSMOS 510		6123	USSR		20 JUL	116.0	74.0	1507	1493													
1972 057H	COSMOS 511		6124	USSR		20 JUL	116.4	74.0	1543	1493													
1972 057J			6125	USSR		20 JUL	117.0	74.0	1600	1490													
1972 058A	LANDSAT 1		6126	US		23 JUL	103.1	99.2	909	897													
1972 058B	058JL			US		23 JUL	SEE NOTE																
1972 062A	COSMOS 514		6149	USSR		16 AUG	104.2	83.0	967	950													
1972 062B			6149	USSR		16 AUG	104.2	83.0	962	948													
1972 062C			6277	USSR		16 AUG	104.1	82.9	957	946													
1972 062D			7560	USSR		16 AUG	102.8	83.0	945	841													
1972 065A	COPERNICUS		6153	US		21 AUG	99.3	35.0	731	720													
1972 065B			6155	US		21 AUG	99.0	35.0	745	675													
1972 066A	COSMOS 516		6154	USSR		21 AUG	104.5	64.8	1035	909													
1972 069A	FRIAD 01-1X		6173	US		2 SEP	100.1	90.0	804	718													
1972 069B			6180	US		2 SEP	99.7	90.0	786	704													
1972 069C			6250	US		2 SEP	98.6	89.7	734	650													
1972 072A	COSMOS 520		6192	USSR		19 SEP	715.1	67.7	36568	3653													
1972 072E			6302	USSR		19 SEP	706.7	67.6	36097	3709													
1972 073A	EXPLORER 47		6197	US		23 SEP	CURRENT ELEMENTS NOT MAINTAINED																
1972 074A	COSMOS 521		6206	USSR		29 SEP	104.9	65.8	995	984													
1972 074B			6207	USSR		29 SEP	104.7	65.8	1003	960													
1972 074C			6210	USSR		29 SEP	104.9	65.8	953	985													
1972 076A			6212	US		2 OCT	98.1	98.6	675	663													
1972 076B			6218	US		2 OCT	99.0	98.5	716	700													
1972 076C			6221	US		2 OCT	99.2	98.5	731	711													
1972 076D			6221	US		2 OCT	97.8	98.6	662	647													
1972 079C			6822	US		10 OCT	114.7	95.6	1462	1417													
1972 079D			6823	US		10 OCT	114.7	95.9	1483	1404													
1972 079E			6824	US		10 OCT	114.6	95.5	1442	1431													

17*

17*

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCL- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FRQ.(MHZ)	NOTES
1972 LAUNCHES (CONT.)										
1972 082A	NOAA 2	6235	US	15 OCT	114.9	101.8	1453	1446		
1972 082B	AMSAT-OSCAR 6	6236	US	15 OCT	114.9	101.8	1452	1446		
1972 082C		6237	US	15 OCT	109.2	102.8	1465	915		
1972 085A	METEOR	6256	USSR	26 OCT	102.3	81.3	882	853		
1972 085B		6257	USSR	26 OCT	102.4	81.3	916	832		
1972 087A	COSMOS 528	6262	USSR	1 NOV	114.1	74.0	1465	1364		
1972 087B	COSMOS 529	6264	USSR	1 NOV	114.5	74.0	1465	1400		
1972 087C	COSMOS 530	6265	USSR	1 NOV	113.7	74.0	1465	1331		
1972 087D	COSMOS 531	6266	USSR	1 NOV	114.7	74.0	1467	1418		
1972 087E	COSMOS 532	6267	USSR	1 NOV	113.4	74.0	1465	1298		
1972 087F	COSMOS 533	6268	USSR	1 NOV	113.6	74.0	1466	1314		
1972 087G	COSMOS 534	6269	USSR	1 NOV	113.9	74.0	1465	1347		
1972 087H	COSMOS 535	6270	USSR	1 NOV	114.3	74.0	1466	1382		
1972 087J		6271	USSR	1 NOV	116.6	74.0	1591	1464		
1972 089A		6275	US	9 NOV	101.3	98.8	847	790		
1972 089B		6276	US	9 NOV	101.5	98.9	857	801		
1972 090A	ANIK A1	6278	CANADA	10 NOV	1457.1	8.4	36265	36129		
1972 097A	NIMBUS 5	6305	US	11 DEC	107.1	99.7	1099	1087		
1972 097B		6306	US	11 DEC	111.7	99.8	1515	1098		
1972 101A		6317	US	20 DEC	111.7	99.8	1515	1098		
1972 101B		6319	US	20 DEC	112.9	74.0	1377	1340		
1972 102A	COSMOS 539	6319	USSR	21 DEC	112.7	74.0	1370	1334		
1972 102B		6320	USSR	21 DEC	112.7	74.0	1370	1334		
1972 104A	COSMOS 540	6324	USSR	25 DEC	100.5	74.1	794	766		
1972 104B		6324	USSR	25 DEC	100.1	74.1	772	757		
1972 104C		6391	USSR	25 DEC	99.4	74.1	739	723		
1972 104D		6396	USSR	25 DEC	99.4	74.0	739	717		
1973 LAUNCHES										
1973 005A	COSMOS 546	6350	USSR	26 JAN	96.0	53.6	579	549		
1973 009A	PROGNDZ 1	6364	USSR	15 FEB						
1973 013A		6380	US	6 MAR						
1973 015A	METEOR	6392	USSR	20 MAR	102.4	81.2	882	861		
1973 015B		6393	USSR	20 MAR	102.6	81.3	923	834		
1973 019A	PIONEER 11	6421	US	5 APR						
1973 019B		6425	US	6 APR						
1973 023A	ANIK A2	6437	CANADA	20 APR	1443.0	7.2	35956	35888		
1973 034A	METEOR	6659	USSR	29 MAY	102.2	81.2	882	845		
1973 034B		6659	USSR	29 MAY	102.5	81.2	910	843		
1973 037A	COSMOS 564	6675	USSR	8 JUN	114.6	74.0	1478	1392		
1973 037B	COSMOS 565	6676	USSR	8 JUN	114.6	74.0	1487	1447		
1973 037C	COSMOS 566	6677	USSR	8 JUN	115.3	74.0	1480	1431		
1973 037D	COSMOS 567	6678	USSR	8 JUN	115.0	74.0	1481	1410		
1973 037E	COSMOS 568	6679	USSR	8 JUN	114.4	74.0	1478	1373		
1973 037F	COSMOS 569	6690	USSR	8 JUN	114.4	74.0	1478	1355		
1973 037G	COSMOS 570	6681	USSR	8 JUN	114.2	74.0	1478	1335		
1973 037H	COSMOS 571	6682	USSR	8 JUN	113.9	74.0	1477	1317		
1973 037J		6683	USSR	8 JUN	113.7	74.0	1477	1317		
1973 039A	EXPLORER 40	6646	US	10 JUN	116.8	74.0	1594	1482		

SELENOCENTRIC ORBIT

HELIOCENTRIC ORBIT

SOLAR SYSTEM ESCAPE TRAJECTORY

CURRENT ELEMENTS NOT MAINTAINED

CURRENT ELEMENTS NOT MAINTAINED

OBJECTS IN ORBIT											
INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES	
1973 LAUNCHES (CONT.)											
1973 039D		6689	US	10 JUN							
1973 039F		6725	US	10 JUN							
1973 039G		6726	US	10 JUN							
1973 040A		6691	US	12 JUN							
1973 0408		11940	US	12 JUN							
1973 042A	COSMOS 574	6707	USSR	20 JUN	105.0	82.9	1007	979			
1973 0428		6708	USSR	20 JUN	104.8	82.9	996	977			
1973 047A	MARS 4	6742	USSR	21 JUL							
1973 049A	MARS 5	6754	USSR	25 JUL							
1973 052A	MARS 6	6768	USSR	5 AUG							
1973 053A	MARS 7	6776	USSR	9 AUG							
1973 053D	CAPSULE	7224	USSR	9 AUG							
1973 054A		6787	US	17 AUG	101.0	98.7	828	786			
1973 054B		6788	US	17 AUG	101.2	98.8	835	792			
1973 056A		6791	US	21 AUG							
1973 056B		6792	US	21 AUG							
1973 058A	INTELSAT 4 F-7	6796	ITSO	23 AUG	1452.5	7.3	36137	36075			
1973 058B		6797	US	23 AUG	652.7	27.5	36553	539			
1973 064A	COSMOS 585	6825	USSR	8 SEP	113.5	74.0	1403	1372			
1973 064B		6826	USSR	8 SEP	113.4	74.0	1403	1357			
1973 065A	COSMOS 586	6828	USSR	14 SEP	104.7	82.9	1002	960			
1973 065B		6829	USSR	14 SEP	104.6	82.9	992	958			
1973 069A	COSMOS 588	6845	USSR	2 OCT	115.3	74.0	1491	1446			
1973 069B	COSMOS 589	6846	USSR	2 OCT	114.9	74.0	1486	1413			
1973 069C	COSMOS 590	6847	USSR	2 OCT	115.1	74.0	1485	1431			
1973 069D	COSMOS 591	6848	USSR	2 OCT	114.1	74.0	1484	1344			
1973 069E	COSMOS 592	6849	USSR	2 OCT	113.9	74.0	1483	1327			
1973 069F	COSMOS 593	6850	USSR	2 OCT	114.3	74.0	1483	1361			
1973 069G	COSMOS 594	6851	USSR	2 OCT	114.5	74.0	1484	1379			
1973 069H	COSMOS 595	6852	USSR	2 OCT	114.7	74.0	1483	1396			
1973 069J		6853	USSR	2 OCT	117.1	74.0	1620	1483			
1973 078A	EXPLORER 50	6893	US	26 OCT							
1973 078C		6895	US	26 OCT	101.8	28.9	1340	343			
1973 078D		6896	US	26 OCT							
1973 080A	COSMOS 604	6907	USSR	29 OCT	94.5	81.2	501	489			
1973 080B		6908	USSR	29 OCT	94.8	81.2	534	482			
1973 081A	MNSS 30200	6909	US	30 OCT	105.3	89.9	1128	887			
1973 081B		6910	US	30 OCT	105.3	89.9	1129	888			
1973 081C		15764	US	30 OCT	105.8	90.5	1177	890			
1973 084A	COSMOS 606	6916	USSR	2 NOV	718.8	67.8	37450	2952			
1973 084D		6939	USSR	2 NOV	706.5	67.6	36989	2809			
1973 085A	MARTINER 10	6919	US	3 NOV							
1973 086A	NOAA 3	6920	US	6 NOV	116.1	102.0	1509	1498			
1973 086B	- 086HF		US	6 NOV							
1973 088D		6938	US	10 NOV	SEE NOTE	18*					
1973 088E		7559	US	10 NOV	114.5	96.9	1454	1412			
1973 098A	COSMOS 614	6965	USSR	10 NOV	114.6	96.8	1476	1400			
1973 098B		6966	USSR	4 DEC	100.3	74.0	701	755			
1973 098C		6967	USSR	4 DEC	100.2	74.0	784	750			
1973 098D		9569	USSR	4 DEC	99.2	74.1	731	706			
1973 098D			USSR	4 DEC	100.0	74.1	771	741			

193

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OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHz)	NOTES
1973 LAUNCHES (CONT.)										
1973 100A		6973	US	13 DEC	1474.6	11.1	36668	36405		
1973 100B		6974	US	13 DEC	1436.1	10.8	35787	35786		
1973 100D		6976	US	13 DEC	1515.0	11.7	38481	36153		
1973 104A	COSMOS 617	6985	USSR	19 DEC	113.9	74.0	1481	1332		
1973 104B	COSMOS 618	6986	USSR	19 DEC	115.2	74.0	1485	1441		
1973 104C	COSMOS 619	6987	USSR	19 DEC	115.0	74.0	1485	1421		
1973 104D	COSMOS 620	6988	USSR	19 DEC	115.4	74.0	1491	1456		
1973 104E	COSMOS 621	6989	USSR	19 DEC	114.7	74.0	1483	1404		
1973 104F	COSMOS 622	6990	USSR	19 DEC	114.3	74.0	1482	1367		
1973 104G	COSMOS 623	6991	USSR	19 DEC	114.5	74.0	1483	1385		
1973 104H	COSMOS 624	6992	USSR	19 DEC	114.1	74.0	1483	1349		
1973 104J		6993	USSR	19 DEC	117.0	74.0	1620	1473		
1973 107A	DREOL 2	7003	USSR	26 DEC	104.9	74.0	1588	389		
1973 107B		7004	USSR	26 DEC	104.3	74.0	1543	383		
1973 108A	COSMOS 626	7005	USSR	27 DEC	104.0	65.4	992	898		
1973 109A	COSMOS 627	7008	USSR	29 DEC	104.9	83.0	1014	964		
1973 109B		7009	USSR	29 DEC	104.6	83.0	990	961		
1974 LAUNCHES										
1974 001A	COSMOS 628	7094	USSR	17 JAN	104.7	82.9	1008	951		
1974 001B		7095	USSR	17 JAN	104.5	82.9	998	944		
1974 011A	METEOR	7209	USSR	5 MAR	102.0	81.2	880	823		
1974 011B		7210	USSR	5 MAR	102.0	81.2	913	793		
1974 013A	UK-X4	7213	UK	9 MAR	100.5	97.8	880	683		
1974 013B		7228	US	9 MAR	100.6	97.8	876	693		
1974 015A		7218	US	16 MAR	101.0	99.0	853	763		
1974 015B		7219	US	16 MAR	101.3	99.0	868	769		
1974 017A		7229	USSR	26 MAR	1428.8	11.1	35808	35479		
1974 017F	COSMOS 637	11567	USSR	26 MAR	1425.8	11.2	35782	35387		
1974 020B		7244	US	10 APR	ELEMENTS NOT AVAILABLE					
1974 022A	WESTAR 1	7250	US	13 APR	1441.3	6.7	35905	35873		
1974 024A	COSMOS 641	7265	USSR	23 APR	114.5	74.0	1480	1385		
1974 024B	COSMOS 642	7266	USSR	23 APR	113.7	74.0	1478	1317		
1974 024C	COSMOS 643	7267	USSR	23 APR	114.1	74.0	1480	1350		
1974 024D	COSMOS 644	7268	USSR	23 APR	113.9	74.0	1480	1332		
1974 024E	COSMOS 645	7269	USSR	23 APR	114.3	74.0	1480	1366		
1974 024F	COSMOS 646	7270	USSR	23 APR	114.7	74.0	1482	1401		
1974 024G	COSMOS 647	7271	USSR	23 APR	114.9	74.0	1481	1420		
1974 024J	COSMOS 648	7272	USSR	23 APR	115.1	74.0	1487	1435		
1974 025A		7273	USSR	23 APR	117.0	74.0	1605	1485		
1974 025B	METEOR	7274	USSR	24 APR	102.3	81.2	864	853		
1974 025C		7275	USSR	24 APR	102.4	81.2	916	831		
1974 026A	MDLNITYA 2-9	7276	USSR	26 APR	656.1	62.6	37093	173		
1974 026E		7373	USSR	26 APR	731.1	63.0	40745	262		
1974 028A	COSMOS 650	7291	USSR	29 APR	113.4	74.0	1399	1365		
1974 028B		7284	USSR	29 APR	113.2	74.0	1387	1361		
1974 029A	COSMOS 651	7291	USSR	15 MAY	103.4	65.0	936	901		
1974 032A	COSMOS 654	7297	USSR	17 MAY	104.4	64.9	1021	911		
1974 033A	SMS 1	7298	US	17 MAY	1460.3	12.9	36301	36216		

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OBJECTS IN ORBIT												
INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM	TRANSMITTING FREQ.(MHZ)	NOTES		
1974 LAUNCHES (CONT.)												
1974 037A	LUNA 22	7315	USSR	29 MAY	SELENOCENTRIC ORBIT							
1974 039A	ATS 6	7318	US	30 MAY	1412.1	10.6	35447	35181				
1974 039C		7324	US	30 MAY	1430.6	10.8	35776	35581				
1974 044A	COSMOS 660	7337	USSR	18 JUN	105.5	83.0	1651	385				
1974 044B		7338	USSR	18 JUN	103.6	83.0	1463	389				
1974 048A	COSMOS 663	7349	USSR	27 JUN	104.7	82.9	1000	960				
1974 048B		7350	USSR	27 JUN	104.6	82.9	987	959				
1974 050A	COSMOS 665	7352	USSR	29 JUN	717.7	62.2	40089	262				
1974 050C		7354	USSR	29 JUN	682.6	62.5	38557	46				
1974 052A	METEOR	7363	USSR	9 JUL	102.9	81.2	909	884				
1974 052B		7364	USSR	9 JUL	102.5	81.2	908	846				
1974 054A		7369	US	14 JUL	468.7	125.1	13777	13443				
1974 054C		8599	US	14 JUL	CURRENT ELEMENTS NOT MAINTAINED							
1974 056A	MOLNIYA 2-10	7376	USSR	23 JUL	718.1	61.7	39549	820				
1974 056D		7382	USSR	23 JUL	732.0	62.4	40586	467				
1974 060A	MOLNIYA 1-5	7392	USSR	29 JUL	1436.5	11.5	35856	35734				
1974 063A		7411	US	9 AUG	101.3	98.7	852	786				
1974 063B		7412	US	9 AUG	101.4	98.8	858	789				
1974 066A	COSMOS 673	7417	USSR	16 AUG	93.9	81.2	478	451				
1974 066B		7418	USSR	16 AUG	95.4	81.2	564	507				
1974 066C		8424	USSR	16 AUG	91.2	81.2	337	325				
1974 069A	COSMOS 675	7424	USSR	29 AUG	113.6	74.1	1421	1362				
1974 069B		7426	USSR	29 AUG	113.5	74.1	1419	1352				
1974 071A	COSMOS 676	7433	USSR	11 SEP	100.7	74.0	803	782				
1974 071B		7434	USSR	11 SEP	100.6	74.1	801	768				
1974 071C		8756	USSR	11 SEP	100.1	74.1	767	754				
1974 071D		8829	USSR	11 SEP	100.6	74.1	799	770				
1974 072A	COSMOS 677	7435	USSR	19 SEP	114.4	74.0	1464	1395				
1974 072B	COSMOS 678	7436	USSR	19 SEP	115.9	74.0	1531	1463				
1974 072C	COSMOS 679	7437	USSR	19 SEP	115.7	74.0	1508	1464				
1974 072D	COSMOS 680	7438	USSR	19 SEP	115.5	74.0	1489	1464				
1974 072E	COSMOS 681	7439	USSR	19 SEP	115.3	74.0	1470	1463				
1974 072F	COSMOS 682	7440	USSR	19 SEP	115.1	74.0	1465	1450				
1974 072G	COSMOS 683	7441	USSR	19 SEP	114.8	74.0	1464	1432				
1974 072H	COSMOS 684	7442	USSR	19 SEP	114.6	74.0	1464	1414				
1974 072J		7443	USSR	19 SEP	117.7	74.0	1682	1473				
1974 075A	WESTAR 2	7466	US	10 OCT	1442.1	6.5	35924	35883				
1974 075C		7468	US	10 OCT	314.4	24.4	17672	205				
1974 079A	COSMOS 689	7476	USSR	18 OCT	104.9	82.9	1015	968				
1974 079S		7477	USSR	18 OCT	104.8	82.9	1012	959				
1974 083A	METEOR	7490	USSR	28 OCT	102.2	81.2	889	838				
1974 083B		7493	USSR	28 OCT	102.4	81.2	903	837				
1974 083C		15521	USSR	28 OCT	102.3	81.2	902	836				
1974 089A	NOAA 4	7529	US	15 NOV	114.9	101.7	1457	1442				
1974 089B	AMSAT-OSCAR 7	7530	US	15 NOV	114.8	101.7	1457	1438				
1974 089C	INTASAT	7531	SPAIN	15 NOV	114.8	101.7	1457	1439				
1974 089D	- 089FD		US	15 NOV	SEE NOTE 19*							
1974 092E		7546	USSR	21 NOV	733.3	64.5	40785	330		19*		
1974 093A	INTELSAT 4 F-9	7544	ITSD	21 NOV	1443.1	5.7	35953	35894				
1974 093B		7545	US	21 NOV	652.9	25.4	36574	528				

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OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLT- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1974 LAUNCHES (CONT.)										
1974 094A	SKYNET 29	7547	UK	23 NOV	1436.8	9.5	35825	35774		
1974 097A	HELIOS 1	7567	FRG	10 DEC	HELIOCENTRIC ORBIT					
1974 097B		7568	US	10 DEC	CURRENT ELEMENTS NOT MAINTAINED					
1974 097C		7569	US	10 DEC	HELIOCENTRIC ORBIT					
1974 097D		7570	FRG	10 DEC	HELIOCENTRIC ORBIT					
1974 099A	METEOR	7574	USSR	17 DEC	102.1	81.2	876	842		
1974 099B		7575	USSR	17 DEC	102.1	81.2	906	812		
1974 101A	SYMPHONIE-A	7579	FR/FRG	19 DEC	1440.4	9.7	35887	35854		
1974 101G		9330	US	19 DEC	659.6	12.8	37055	390		
1974 102D		7586	USSR	21 DEC	438.5	62.0	25389	92		
1974 105A		7593	USSR	26 DEC	104.6	83.0	993	959		
1974 105B	COSMOS 700	7594	USSR	26 DEC	104.5	83.0	982	958		
1975 LAUNCHES										
1975 004A	LANDSAT 2	7615	US	22 JAN	103.1	98.8	912	900		
1975 004B - 004H			US	22 JAN	SEE NOTE					
1975 007A	COSMOS 706	7625	USSR	30 JAN	716.9	67.8	33596	6716		
1975 007D		7629	USSR	30 JAN	716.7	67.6	34142	6159		
1975 009D		7653	USSR	6 FEB	685.8	64.1	38462	304		
1975 010A	STARLETTE	7646	FRANCE	6 FEB	104.2	49.8	1107	806		
1975 010B		7647	FRANCE	6 FEB	104.4	49.8	1129	801		
1975 010C		7654	FRANCE	6 FEB	103.7	49.8	1072	797		
1975 010D		7655	FRANCE	6 FEB	103.8	49.8	1077	798		
1975 010E		7659	FRANCE	6 FEB	103.9	49.8	1093	796		
1975 011A	SMS 2	7663	US	6 FEB	1447.2	9.1	36073	35932		
1975 012A	COSMOS 708	7665	USSR	12 FEB	113.5	69.2	1407	1368		
1975 012B		7678	USSR	12 FEB	113.3	69.2	1396	1363		
1975 016A	COSMOS 711	7679	USSR	28 FEB	115.4	74.0	1491	1459		
1975 016B	COSMOS 712	7681	USSR	28 FEB	114.9	74.0	1487	1409		
1975 016C	COSMOS 713	7690	USSR	28 FEB	114.7	74.0	1485	1394		
1975 016D	COSMOS 714	7682	USSR	28 FEB	115.2	74.0	1489	1442		
1975 016E	COSMOS 715	7683	USSR	28 FEB	115.7	74.0	1502	1467		
1975 016F	COSMOS 716	7694	USSR	28 FEB	115.9	74.0	1511	1477		
1975 016G	COSMOS 717	7685	USSR	28 FEB	116.1	74.0	1533	1478		
1975 016H	COSMOS 718	7686	USSR	28 FEB	115.0	74.0	1487	1426		
1975 016J		7697	USSR	28 FEB	117.9	74.0	1718	1456		
1975 017A		7687	US	10 MAR	CURRENT ELEMENTS NOT MAINTAINED					
1975 017B		7688	US	10 MAR	CURRENT ELEMENTS NOT MAINTAINED					
1975 023A	METEOR	7714	USSR	1 APR	102.4	81.2	885	854		
1975 023B		7715	USSR	1 APR	102.4	81.2	911	835		
1975 024A	COSMOS 723	7718	USSR	2 APR	103.7	64.7	957	904		
1975 025A	COSMOS 724	7727	USSR	7 APR	103.0	65.6	933	864		
1975 027A	GEOS 3	7734	US	9 APR	101.6	115.0	859	817		
1975 027B		7735	US	9 APR	101.3	115.0	883	784		
1975 027C		10728	US	9 APR	101.5	115.2	883	778		
1975 027E		10730	US	9 APR	103.6	115.0	1005	851		
1975 028A	COSMOS 726	7736	USSR	11 APR	104.5	83.0	990	950		
1975 028B		7737	USSR	11 APR	104.4	83.0	980	950		
1975 029D		7741	USSR	14 APR	726.6	62.3	40651	139		

ORIGINAL PAGE IS
OF FOUR QUALITY

INTER- NATIONAL DESIGNATION		NAME		OBJECTS IN ORBIT				NOTES		
CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES		
1975 LAUNCHES (CONT.)										
1975 033A	ARIABAT	19 APR	94.1	50.7	480	466				
1975 034A	COSMOS 729	22 APR	104.9	83.0	1003	972				
1975 034B		22 APR	104.8	83.0	996	970				
1975 036A	MOLNIYA 1-29	29 APR	717.7	63.3	39832	514				
1975 036D		29 APR	732.8	63.7	40128	966				
1975 038A	ANIK A3	7 MAY	1439.2	5.9	35850	35844				
1975 038D	US	7 MAY	425.2	24.7	24435	271				
1975 042A	INTELSAT 4 F-1	22 MAY	1450.8	5.7	36126	36020				
1975 042B		22 MAY	653.6	26.0	36559	577				
1975 043A		24 MAY	ELEMENTS NOT AVAILABLE							
1975 043B		24 MAY	ELEMENTS NOT AVAILABLE							
1975 045A	COSMOS 732	28 MAY	114.6	74.0	1468	1401				
1975 045B	COSMOS 733	28 MAY	116.2	74.0	1552	1467				
1975 045C	COSMOS 734	28 MAY	115.0	74.0	1469	1441				
1975 045D	COSMOS 735	28 MAY	115.2	74.0	1471	1459				
1975 045E	COSMOS 736	28 MAY	115.5	74.0	1484	1467				
1975 045F	COSMOS 737	28 MAY	115.9	74.0	1527	1467				
1975 045G	COSMOS 738	28 MAY	115.7	74.0	1507	1467				
1975 045H	COSMOS 739	28 MAY	114.8	74.0	1470	1421				
1975 045J		29 MAY	117.9	74.0	1693	1483				
1975 049B	SRET 2	5 JUN	737.8	62.8	40825	513				
1975 049F		5 JUN	561.5	62.7	32093	240				
1975 050A	VENERA 9	8 JUN	HELIOCENTRIC ORBIT							
1975 051C	SSU 1	8 JUN	113.5	95.1	1394	1382				
1975 051D		8 JUN	113.2	95.0	1460	1344				
1975 051E		8 JUN	113.9	95.2	1423	1383				
1975 052A	NIMBUS 6	12 JUN	107.4	94.6	1112	1099				
1975 052B		12 JUN	107.2	93.6	1100	1090				
1975 054A	VENERA 10	14 JUN	HELIOCENTRIC ORBIT							
1975 055A		18 JUN	CURRENT ELEMENTS NOT MAINTAINED							
1975 055B		18 JUN	CURRENT ELEMENTS NOT MAINTAINED							
1975 056A	COSMOS 744	20 JUN	94.3	81.2	491	477				
1975 056B		20 JUN	95.5	81.3	567	516				
1975 063A	MOLNIYA 2-13	8 JUL	717.0	63.6	39748	567				
1975 063D		8 JUL	733.0	63.8	40149	953				
1975 064A	METEOR 2	11 JUL	102.2	81.3	880	846				
1975 064B		11 JUL	102.4	81.3	910	831				
1975 064C		11 JUL	102.3	81.3	884	846				
1975 064D		11 JUL	102.1	81.3	881	836				
1975 072A	COS-B	9 AUG	2203.9	90.3	99002	442				
1975 072B		9 AUG	124.9	89.2	3473	320				
1975 074A	COSMOS 755	14 AUG	104.8	82.9	1005	966				
1975 074B		14 AUG	104.7	82.9	996	963				
1975 075A	VIKING ORBITER 1	20 AUG	AREOCENTRIC ORBIT							
1975 075B		20 AUG	HELIOCENTRIC ORBIT							
1975 076A	COSMOS 756	22 AUG	94.9	81.2	520	510				
1975 076B		22 AUG	95.8	81.2	587	528				
1975 077A	SYMPHONIE-B	27 AUG	1440.5	10.0	35880	35864				
1975 077B		27 AUG	104.6	25.3	1552	403				
1975 077C		27 AUG	647.2	13.9	36447	365				

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OBJECTS IN ORBIT

INTER-NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1975 LAUNCHES (CONT.)										
1975 081A	MOLNIYA 2-14	8195	USSR	9 SEP	717.6	63.2	39946	401		
1975 081D		8418	USSR	9 SEP	733.7	63.7	40424	714		
1975 082A	KIKU	8197	JAPAN	9 SEP	106.0	47.0	1103	976		
1975 082B		8352	JAPAN	9 SEP	105.9	47.0	1101	974		
1975 083A	VIKING ORBITER 2	8199	US	9 SEP	AREOCENTRIC ORBIT					
1975 083B		8272	US	9 SEP	HELIOCENTRIC ORBIT					
1975 086A	COSMOS 761	8285	USSR	17 SEP	114.6	74.0	1480	1397		
1975 086B	COSMOS 762	8286	USSR	17 SEP	115.1	74.0	1482	1435		
1975 086C	COSMOS 763	8287	USSR	17 SEP	115.8	74.0	1508	1472		
1975 086D	COSMOS 764	8288	USSR	17 SEP	116.0	74.0	1523	1477		
1975 086E	COSMOS 765	8289	USSR	17 SEP	116.3	74.0	1547	1477		
1975 086F	COSMOS 766	8290	USSR	17 SEP	114.9	74.0	1482	1416		
1975 086G	COSMOS 767	8291	USSR	17 SEP	115.3	74.0	1485	1453		
1975 086H	COSMOS 768	8292	USSR	17 SEP	115.5	74.0	1490	1468		
1975 086J		8295	USSR	17 SEP	117.8	74.0	1682	1480		
1975 087A	METEOR	8293	USSR	18 SEP	102.1	81.2	915	798		
1975 087B		8294	USSR	18 SEP	102.3	81.3	914	819		
1975 089A	COSMOS 770	8325	USSR	24 SEP	109.1	83.0	1205	1162		
1975 089B		8326	USSR	24 SEP	108.9	83.0	1197	1159		
1975 091A	INTELSAT 4A F-1	8330	ITSO	26 SEP	1440.9	5.6	35910	35849		
1975 091B		8331	US	26 SEP	653.2	21.7	36545	573		
1975 094A	COSMOS 773	8343	USSR	30 SEP	100.6	74.0	794	775		
1975 094B		8344	USSR	30 SEP	100.4	74.1	794	758		
1975 094C		8346	USSR	30 SEP	99.1	74.0	728	704		
1975 094D		14865	USSR	30 SEP	100.3	74.0	778	769		
1975 097A	COSMOS 775	8357	USSR	8 OCT	1437.3	11.0	35861	35759		
1975 097E		8415	USSR	8 OCT	CURRENT ELEMENTS NOT MAINTAINED					
1975 097F		11676	USSR	8 OCT	1438.8	11.1	35919	35757		
1975 099A	TIP 2	8361	US	12 OCT	95.1	90.4	571	473		
1975 100A	GOES 1	8366	US	16 OCT	1435.9	9.5	35786	35780		
1975 100C		8368	US	16 OCT	173.6	23.4	7606	254		
1975 103A	COSMOS 778	8419	USSR	4 NOV	104.8	83.0	1000	966		
1975 103B		8421	USSR	4 NOV	104.6	83.0	994	960		
1975 105A	MOLNIYA 3-3	8425	USSR	14 NOV	717.7	63.4	39783	568		
1975 105D		8462	USSR	14 NOV	733.8	63.8	40301	842		
1975 112A	COSMOS 783	8458	USSR	28 NOV	100.7	74.1	800	782		
1975 112B		8459	USSR	28 NOV	100.5	74.1	795	771		
1975 112C		8757	USSR	28 NOV	99.9	74.0	754	749		
1975 112D		14801	USSR	29 NOV	100.6	74.1	792	782		
1975 112E		18500	USSR	29 NOV	100.8	74.1	807	781		
1975 116A	COSMOS 785	8473	USSR	12 DEC	104.2	65.1	1018	894		
1975 117A	RCA SATCOM I	8476	US	13 DEC	1445.8	5.5	36068	35885		
1975 118A		8482	US	14 DEC	ELEMENTS NOT AVAILABLE					
1975 118C		8516	US	14 DEC	ELEMENTS NOT AVAILABLE					
1975 118D		8517	US	14 DEC	ELEMENTS NOT AVAILABLE					
1975 121A	MOLNIYA 2-15	8492	USSR	17 DEC	517.6	62.8	29830	123		
1975 121A	PROGNOZ 4	8510	USSR	22 DEC	CURRENT ELEMENTS NOT MAINTAINED					
1975 122A		8513	USSR	22 DEC	ELEMENTS NOT AVAILABLE					
1975 123A	RADUGA 1	8546	USSR	22 DEC	383.6	46.4	21857	363		
1975 123C		8547	USSR	22 DEC	416.6	45.4	24012	184		

INTER- NATIONAL DESIGNATION	NAME	OBJECTS IN ORBIT					CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1975 LAUNCHES (CONT.)															
1975 123F	METEOR		USSR	22 DEC	1432.8	10.7		11568				35772	35672		
1975 124A		USSR	25 DEC	102.2	81.2		8519				883	838			
1975 124B		USSR	25 DEC	102.3	81.3		8520				902	830			
1976 LAUNCHES															
1976 003A	HELIOS 2	15 JAN	FRG	15 JAN	HELIOCENTRIC ORBIT			8582							
1976 003B		15 JAN	US	15 JAN	HELIOCENTRIC ORBIT			8583							
1976 003C		15 JAN	US	15 JAN	HELIOCENTRIC ORBIT			8584							
1976 004A	CTS	17 JAN	CANADA	17 JAN	1437.1	10.1	35880	35734							
1976 005A	COSMOS 789	20 JAN	USSR	20 JAN	104.9	83.0	1010	967							
1976 005B		20 JAN	USSR	20 JAN	104.8	83.0	1000	965							
1976 006A	MOLNIYA 1-32	22 JAN	USSR	22 JAN	720.2	63.6	39436	1038							
1976 006D		USSR	22 JAN	695.4	63.7	38523	723								
1976 008A		USSR	28 JAN	74.0	1484	1399									
1976 008B	COSMOS 791	28 JAN	USSR	28 JAN	115.1	74.1	1488	1433							
1976 008C	COSMOS 792	28 JAN	USSR	28 JAN	114.9	74.1	1488	1415							
1976 008D	COSMOS 793	28 JAN	USSR	28 JAN	115.3	74.1	1491	1450							
1976 008E	COSMOS 795	28 JAN	USSR	28 JAN	115.6	74.1	1496	1465							
1976 008F	COSMOS 796	28 JAN	USSR	28 JAN	115.8	74.1	1513	1470							
1976 008G	COSMOS 797	28 JAN	USSR	28 JAN	116.0	74.1	1527	1477							
1976 008H	COSMOS 798	28 JAN	USSR	28 JAN	116.3	74.1	1553	1476							
1976 008J		28 JAN	USSR	28 JAN	117.9	74.1	1693	1481							
1976 010A	INTELSAT 4A F-2	29 JAN	ITSO	29 JAN	1444.6	5.9	35977	35927							
1976 010B		29 JAN	US	29 JAN	654.1	22.0	36552	614							
1976 011A	COSMOS 800	3 FEB	USSR	3 FEB	105.0	83.0	1009	976							
1976 011B		3 FEB	USSR	3 FEB	104.8	83.0	989	983							
1976 014A	COSMOS 803	12 FEB	USSR	12 FEB	95.6	65.8	568	526							
1976 017A	MARISAT 1	19 FEB	US	19 FEB	1436.1	8.1	35797	35776							
1976 017C		19 FEB	US	19 FEB	182.8	24.5	8330	251							
1976 019A	UME	29 FEB	JAPAN	29 FEB	105.1	69.7	1007	986							
1976 019B		29 FEB	JAPAN	29 FEB	105.1	69.7	1011	988							
1976 021A	MOLNIYA 1-33	11 MAR	USSR	11 MAR	716.3	62.7	40040	239							
1976 021D		USSR	11 MAR	731.1	63.0	40289	718								
1976 022A		USSR	12 MAR	105.8	82.9	1680	386								
1976 022B	COSMOS 807	12 MAR	USSR	12 MAR	103.4	82.9	1465	375							
1976 023A	LES 8	15 MAR	US	15 MAR	1435.8	19.9	35826	35736							
1976 023B	LES 9	15 MAR	US	15 MAR	1436.1	19.8	35806	35768							
1976 023C	SOLRAD 11A	15 MAR	US	15 MAR	CURRENT ELEMENTS NOT MAINTAINED										
1976 023D	SOLRAD 11B	15 MAR	US	15 MAR	CURRENT ELEMENTS NOT MAINTAINED										
1976 023F		15 MAR	US	15 MAR	1465.6	20.2	36981	35742							
1976 023G		15 MAR	US	15 MAR	CURRENT ELEMENTS NOT MAINTAINED										
1976 023H		15 MAR	US	15 MAR	CURRENT ELEMENTS NOT MAINTAINED										
1976 023J		15 MAR	US	15 MAR	CURRENT ELEMENTS NOT MAINTAINED										
1976 023K		15 MAR	US	15 MAR	1421.0	8.5	35494	35484							
1976 024A	COSMOS 808	16 MAR	USSR	16 MAR	95.2	81.2	540	517							
1976 024B		16 MAR	USSR	16 MAR	95.3	81.2	563	500							
1976 029A	RCA SATCOM II	26 MAR	US	26 MAR	1460.1	5.4	36503	36008							
1976 032A	METEOR	7 APR	USSR	7 APR	102.1	81.3	881	832							
1976 032B		7 APR	USSR	7 APR	102.2	81.2	933	793							

OF FOUR QUALITY

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCL- INATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ. (MHz)	NOTES
1976 LAUNCHES (CONT.)										
1976 035A	NATO III-A	8808	NATO	22 APR	1436.1	8.0	35794	35779		
1976 038A		8818	US	30 APR		ELEMENTS NOT AVAILABLE				
1976 038B		8819	US	30 APR		ELEMENTS NOT AVAILABLE				
1976 038C	SSU-1	8835	US	30 APR		ELEMENTS NOT AVAILABLE				
1976 038D	SSU-2	8836	US	30 APR		ELEMENTS NOT AVAILABLE				
1976 038E		8839	US	30 APR		ELEMENTS NOT AVAILABLE				
1976 038F		8842	US	30 APR		ELEMENTS NOT AVAILABLE				
1976 038G		8843	US	30 APR		ELEMENTS NOT AVAILABLE				
1976 038H		8859	US	30 APR		ELEMENTS NOT AVAILABLE				
1976 038J	SSU-3	8884	US	30 APR		ELEMENTS NOT AVAILABLE				
1976 038K		9726	US	30 APR		ELEMENTS NOT AVAILABLE				
1976 038L		9936	US	30 APR		ELEMENTS NOT AVAILABLE				
1976 039A	LAGEOS	8820	US	4 MAY	225.4	109.9	5946	5837		
1976 039B		8821	US	4 MAY	108.5	109.6	2030	283		
1976 039C		8822	US	4 MAY	225.4	109.9	5941	5837		
1976 039D		14514	US	4 MAY	115.4	110.0	2655	289		
1976 041A	MOLNIYA 3-5	8933	USSR	12 MAY	664.3	62.0	37590	93		
1976 041D		8844	USSR	12 MAY	710.5	61.9	39885	111		
1976 042A	COMSTAR 1	8838	US	13 MAY	1442.5	5.7	35923	35901		
1976 042B		8840	US	13 MAY	648.6	21.6	36207	675		
1976 043A	METEOR	8845	USSR	15 MAY	102.1	81.3	887	826		
1976 043B		8846	USSR	15 MAY	102.3	81.2	906	827		
1976 047A	P 76-5	8860	US	22 MAY	105.5	99.6	1047	984		
1976 047B		8861	US	22 MAY	105.5	99.6	1048	985		
1976 047C		8867	US	22 MAY	106.3	99.2	1113	1000		
1976 047D		8868	US	22 MAY	104.6	100.1	1016	938		
1976 050A		8871	US	2 JUN		CURRENT ELEMENTS NOT MAINTAINED				
1976 050B		8872	US	2 JUN		CURRENT ELEMENTS NOT MAINTAINED				
1976 051A	COSMOS 823	8873	USSR	2 JUN	104.9	83.0	1004	972		
1976 051B		8874	USSR	2 JUN	104.8	83.0	1000	966		
1976 053A	MARISAT 2	8882	US	10 JUN	1436.1	7.3	35794	35780		
1976 053F		8910	US	10 JUN	499.9	25.4	28683	291		
1976 054A	COSMOS 825	8889	USSR	15 JUN	114.6	74.0	1485	1393		
1976 054B	COSMOS 826	8890	USSR	15 JUN	116.2	74.0	1542	1480		
1976 054C	COSMOS 827	8891	USSR	15 JUN	114.9	74.0	1487	1411		
1976 054D	COSMOS 828	8892	USSR	15 JUN	115.1	74.0	1487	1431		
1976 054E	COSMOS 829	8893	USSR	15 JUN	115.3	74.0	1489	1448		
1976 054F	COSMOS 830	8894	USSR	15 JUN	115.5	74.0	1491	1465		
1976 054G	COSMOS 831	8895	USSR	15 JUN	115.7	74.0	1505	1473		
1976 054H	COSMOS 832	8896	USSR	15 JUN	116.0	74.0	1517	1481		
1976 054J		8897	USSR	15 JUN	117.9	74.0	1686	1485		
1976 059A		8916	US	26 JUN		ELEMENTS NOT AVAILABLE				
1976 059C		8918	US	26 JUN		ELEMENTS NOT AVAILABLE				
1976 059D		8919	US	26 JUN		ELEMENTS NOT AVAILABLE				
1976 061A	COSMOS 836	8923	USSR	29 JUN	100.7	74.1	805	776		
1976 061B		8924	USSR	29 JUN	100.5	74.1	794	772		
1976 061C		9572	USSR	29 JUN	99.7	74.1	749	742		
1976 061D		14815	USSR	29 JUN	99.9	74.1	764	740		
1976 065C		9008	US	8 JUL		ELEMENTS NOT AVAILABLE				
1976 066A	PALAPA 1	9009	INDNSA	8 JUL	1439.2	4.5	35864	35831		

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCL- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1976 LAUNCHES (CONT.)										
1976 066C		9017	US	8 JUL	365.6	24.6	20864	254		
1976 067A	COSMOS 839	9011	USSR	8 JUL	115.6	65.9	2064	904		21*
1976 067B - 067BW			USSR	8 JUL	SEE NOTE		21*			
1976 067BU		20030	USSR	8 JUL	115.4	65.6	2284	661		
1976 069A	COSMOS 841	9022	USSR	15 JUL	100.5	74.0	793	772		
1976 069B		9023	USSR	15 JUL	100.4	74.1	789	762		
1976 069C		9704	USSR	15 JUL	99.9	74.1	758	747		
1976 069D		13499	USSR	15 JUL	100.7	74.1	808	775		
1976 070A	COSMOS 842	9025	USSR	21 JUL	104.8	83.0	1006	963		
1976 070B		9044	USSR	21 JUL	104.7	83.0	989	966		
1976 073A	COMSTAR 2	9047	US	22 JUL	1436.0	5.5	35789	35782		
1976 073B		9329	US	22 JUL	646.3	21.4	36151	617		
1976 074E		9269	USSR	23 JUL	684.2	62.6	38054	630		
1976 077A	NOAA 5	9057	US	29 JUL	116.2	101.9	1519	1504		
1976 077B - 077FR			US	29 JUL	SEE NOTE		22*			22*
1976 078A	COSMOS 846	9061	USSR	29 JUL	104.6	82.9	1009	945		
1976 078B		9062	USSR	29 JUL	104.5	82.9	992	948		
1976 080A		9270	US	6 AUG	CURRENT ELEMENTS NOT MAINTAINED					
1976 080B		9271	US	6 AUG	CURRENT ELEMENTS NOT MAINTAINED					
1976 085B		9390	USSR	27 AUG	94.3	81.1	521	447		
1976 091A	DMSP-F1	9415	US	11 SEP	ELEMENTS NOT AVAILABLE					
1976 091B		9419	US	11 SEP	ELEMENTS NOT AVAILABLE					
1976 091C		9420	US	11 SEP	ELEMENTS NOT AVAILABLE					
1976 091F		9484	US	11 SEP	ELEMENTS NOT AVAILABLE					
1976 091G		9518	US	11 SEP	ELEMENTS NOT AVAILABLE					
1976 092A	RADUGA 2	9416	USSR	11 SEP	1436.5	10.4	35889	35697		
1976 092F		17872	USSR	11 SEP	1436.3	10.4	35863	35715		
1976 098A	COSMOS 858	9443	USSR	29 SEP	100.6	74.0	798	777		
1976 098B		9444	USSR	29 SEP	100.5	74.0	791	770		
1976 098C		14916	USSR	29 SEP	100.6	74.0	805	773		
1976 098D		14817	USSR	29 SEP	99.9	74.1	767	737		
1976 098E		18504	USSR	29 SEP	100.1	74.1	782	748		
1976 101A	MARISAT 3	9478	US	14 OCT	1436.1	8.8	35794	35780		
1976 102A	METEOR	9481	USSR	15 OCT	102.2	81.3	890	838		
1976 102B		9482	USSR	15 OCT	102.4	81.3	915	826		
1976 103A	COSMOS 860	9486	USSR	17 OCT	104.3	64.7	998	921		
1976 103F		19297	USSR	17 OCT	102.7	64.7	909	866		
1976 104A	COSMOS 861	9494	USSR	21 OCT	104.2	64.9	999	918		
1976 105A	COSMOS 862	9495	USSR	22 OCT	717.8	67.0	38674	1679		
1976 105B - 105P			USSR	22 OCT	SEE NOTE		23*			23*
1976 107A	EKRAN	9503	USSR	26 OCT	1436.5	10.3	36077	35511		
1976 107F		11569	USSR	26 OCT	1419.3	10.2	35497	35416		
1976 108A	COSMOS 864	9509	USSR	29 OCT	104.7	82.9	1003	959		
1976 108B		9510	USSR	29 OCT	104.6	82.9	993	956		
1976 108B		9557	USSR	25 NOV	CURRENT ELEMENTS NOT MAINTAINED					
1976 112A	PROGN02 5	9574	USSR	2 DEC	717.5	62.2	39813	525		
1976 116A	MDLNIYA 2-16	9579	USSR	2 DEC	731.9	62.3	40186	864		
1976 116D		9588	USSR	7 DEC	114.6	74.0	1462	1415		
1976 118A	COSMOS 871	9589	USSR	7 DEC	114.4	74.0	1462	1396		
1976 118B	COSMOS 872	9589	USSR	7 DEC	114.4	74.0	1462	1396		
1976 118C	COSMOS 873	9590	USSR	7 DEC	115.5	74.0	1494	1461		

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OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCL- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1976 LAUNCHES (CONT.)										
1976 118D	COSMOS 874	9591	USSR	7 DEC	115.7	74.0	1514	1462		
1976 118E	COSMOS 875	9592	USSR	7 DEC	114.8	74.0	1462	1434		
1976 118F	COSMOS 876	9593	USSR	7 DEC	116.0	74.0	1536	1462		
1976 118G	COSMOS 877	9594	USSR	7 DEC	115.0	74.0	1462	1452		
1976 118H	COSMOS 878	9595	USSR	7 DEC	115.3	74.0	1473	1461		
1976 118J		9598	USSR	7 DEC	117.6	74.0	1682	1463		
1976 1208 - 120BC			USSR	9 DEC	SEE NOTE		24*			24*
1976 122A	COSMOS 883	9610	USSR	15 DEC	104.7	83.0	1006	952		
1976 122B		9613	USSR	15 DEC	104.6	83.0	997	950		
1976 126A	COSMOS 886	9634	USSR	27 DEC	114.8	65.8	2306	582		
1976 126B - 126CF			USSR	27 DEC	SEE NOTE		25*			25*
1976 127A	MOLNIYA 3-6	9635	USSR	28 DEC	357.1	62.4	20286	305		
1976 128A	COSMOS 887	9637	USSR	28 DEC	104.7	82.9	1012	944		
1976 128B		9638	USSR	28 DEC	104.5	82.9	996	947		
1977 LAUNCHES										
1977 002A	METEOR 2-2	9661	USSR	6 JAN	102.7	81.3	895	878		
1977 002B		9662	USSR	6 JAN	102.8	81.3	931	853		
1977 002C		9663	USSR	6 JAN	102.7	81.3	892	881		
1977 002D		9664	USSR	6 JAN	102.7	81.3	895	881		
1977 004A	COSMOS 890	9737	USSR	20 JAN	105.0	83.0	1012	976		
1977 004B		9738	USSR	20 JAN	104.8	83.0	998	976		
1977 005A	NATO III-B	9785	NATO	28 JAN	1436.0	7.6	35811	35758		
1977 005B		9786	US	28 JAN	103.9	28.0	1265	619		
1977 005D		9809	US	28 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1977 005E		9810	US	28 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1977 005F		9811	US	28 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1977 007A		9803	US	6 FEB	ELEMENTS NOT AVAILABLE					
1977 007C		9855	US	6 FEB	ELEMENTS NOT AVAILABLE					
1977 007D		9856	US	6 FEB	ELEMENTS NOT AVAILABLE					
1977 010A	MOLNIYA 2-17	9829	USSR	11 FEB	717.6	63.7	39181	1166		
1977 010E		9850	USSR	11 FEB	731.0	64.1	39195	1810		
1977 012A	TANSEI 3	9841	JAPAN	19 FEB	134.1	65.8	3799	803		
1977 012C		9843	JAPAN	19 FEB	134.1	65.7	3796	802		
1977 012E		9981	JAPAN	19 FEB	133.4	65.2	3765	785		
1977 012F		9982	JAPAN	19 FEB	133.6	65.9	3779	777		
1977 012G		9983	JAPAN	19 FEB	134.2	65.6	3793	815		
1977 012H		12857	JAPAN	19 FEB	134.1	65.3	3785	813		
1977 012J		13133	JAPAN	19 FEB	133.2	65.8	3730	792		
1977 013A		19314	JAPAN	19 FEB	133.5	65.4	3918	627		
1977 013B	COSMOS 894	9846	USSR	21 FEB	104.8	82.9	1007	964		
1977 013B		9848	USSR	21 FEB	104.7	83.0	991	969		
1977 014A	KIKU 2	9852	JAPAN	23 FEB	1436.2	9.9	35791	35787		
1977 014B		9859	JAPAN	23 FEB	CURRENT ELEMENTS NOT MAINTAINED					
1977 015A	COSMOS 895	9853	USSR	26 FEB	94.7	81.2	513	493		
1977 015B		9854	USSR	26 FEB	95.4	81.2	579	500		
1977 018A	PALAPA 2	9862	INDONESIA	10 MAR	1435.8	10.8	35798	35763		
1977 021A		9880	USSR	24 MAR	717.7	63.7	39356	993		
1977 021D	MOLNIYA 1-36	9927	USSR	24 MAR	732.9	64.0	39463	1633		

OBJECTS IN ORBIT										
INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES.
1977 LAUNCHES (CONT.)										
1977 024A	METEOR	9903	USSR	5 APR	102.3	81.3	887	846		
1977 024B		9904	USSR	5 APR	102.4	81.3	912	833		
1977 024C		9907	USSR	5 APR	103.1	82.9	932	880		
1977 027A	COSMOS 903	9911	USSR	11 APR	717.5	67.5	36934	3406		
1977 027D		9921	USSR	11 APR	724.0	67.7	37553	3107		
1977 027E		10946	USSR	11 APR	CURRENT ELEMENTS NOT MAINTAINED					
1977 029A	ESA-GEOS	9931	ESA	20 APR	734.2	27.7	38367	2791		
1977 032A	MOLNIYA 3-7	9941	USSR	28 APR	717.7	63.7	39315	1033		
1977 034A		10000	US	12 MAY	1489.6	9.2	36902	36752		
1977 034B		10001	US	12 MAY	1509.1	8.8	37362	37043		
1977 034C		10002	US	12 MAY	1507.0	9.4	38399	35924		
1977 036A	COSMOS 909	10010	USSR	19 MAY	117.0	65.9	2103	989		
1977 036B		10011	USSR	19 MAY	116.9	65.9	2092	987		
1977 036C		10013	USSR	19 MAY	117.0	65.9	2102	989		
1977 038A		10016	US	23 MAY	ELEMENTS NOT AVAILABLE					
1977 038B		10017	US	23 MAY	ELEMENTS NOT AVAILABLE					
1977 038C		15422	US	23 MAY	ELEMENTS NOT AVAILABLE					
1977 039A	COSMOS 911	10019	USSR	25 MAY	104.7	82.9	998	962		
1977 039B		10020	USSR	25 MAY	104.5	82.9	997	948		
1977 041A	INTELSAT 4A F-4	10024	ITSO	26 MAY	1448.1	4.6	36068	35974		
1977 041B		10025	US	26 MAY	648.4	21.2	36268	605		
1977 044A	DMSP-F2	10033	US	5 JUN	ELEMENTS NOT AVAILABLE					
1977 044B		10034	US	5 JUN	ELEMENTS NOT AVAILABLE					
1977 044C		10037	US	5 JUN	ELEMENTS NOT AVAILABLE					
1977 044D		10085	US	5 JUN	ELEMENTS NOT AVAILABLE					
1977 047A	COSMOS 917	10059	USSR	16 JUN	717.4	67.6	34392	5945		
1977 047D		10089	USSR	16 JUN	722.4	67.4	35126	5456		
1977 048A	GOES 2	10061	US	16 JUN	1432.7	7.9	35855	35584		
1977 048B		10062	US	16 JUN	108.5	29.4	1740	574		
1977 048F		10409	US	16 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1977 053A		10091	US	23 JUN	718.1	64.6	20319	20051		
1977 053B		10960	US	23 JUN	314.4	64.5	16880	994		
1977 054A	MOLNIYA 1-37	10092	USSR	24 JUN	717.7	63.0	39217	1132		
1977 054D		10155	USSR	24 JUN	695.4	63.5	37941	1302		
1977 055A	COSMOS 921	10095	USSR	24 JUN	97.3	75.8	665	596		
1977 055B		10096	USSR	24 JUN	97.4	75.8	668	595		
1977 057A	METEOR	10113	USSR	29 JUN	95.1	97.3	547	502		
1977 057B		10114	USSR	29 JUN	96.7	97.8	613	587		
1977 059A	COSMOS 923	10120	USSR	1 JUL	100.8	74.0	804	784		
1977 059B		10121	USSR	1 JUL	100.6	74.0	801	771		
1977 059C		14802	USSR	1 JUL	100.4	74.1	788	766		
1977 059D		14818	USSR	1 JUL	100.1	74.1	771	752		
1977 061A	COSMOS 925	10134	USSR	7 JUL	95.0	81.2	526	510		
1977 061B		10135	USSR	7 JUL	95.5	81.2	574	514		
1977 062A	COSMOS 926	10137	USSR	8 JUL	104.9	82.9	1016	967		
1977 062B		10138	USSR	8 JUL	104.8	82.9	1002	971		
1977 064A	COSMOS 928	10141	USSR	13 JUL	104.6	83.0	1003	949		
1977 064B		10142	USSR	13 JUL	104.5	83.0	1000	940		
1977 065A	HIMAWARI	10143	JAPAN	14 JUL	1450.9	8.1	36142	36011		
1977 065B - 65GC			US	14 JUL	SEE NOTE					26*

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INTER-NATIONAL DESIGNATION		NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES	
1977 LAUNCHES (CONT.)												
1977 068A		COSMOS 931	10150	USSR	20 JUL	717.2	67.3	35462	4865			
1977 068D			10167	USSR	20 JUL	710.2	68.2	35235	4743			
1977 068E			12906	USSR	20 JUL	715.6	69.1	35502	4742			
1977 068F			12996	USSR	20 JUL	704.4	61.8	38095	1596			
1977 068G			14000	USSR	20 JUL	718.6	65.7	36856	3540			
1977 068J			19881	USSR	20 JUL	685.9	60.4	37728	1039			
1977 071A		RADUGA 3	10159	USSR	23 JUL	1435.4	10.0	35808	35736			
1977 071F			11570	USSR	23 JUL	1473.4	10.3	36562	36464			
1977 076A		VOYAGER 2	10271	US	20 AUG	SOLAR SYSTEM ESCAPE TRAJECTORY						
1977 076B			10272	US	20 AUG	HELIOCENTRIC ORBIT						
1977 076C			10273	US	20 AUG	HELIOCENTRIC ORBIT						
1977 079A		COSMOS 939	10282	USSR	24 AUG	114.8	74.0	1460	1430			
1977 079B		COSMOS 940	10286	USSR	24 AUG	114.4	74.0	1460	1391			
1977 079C		COSMOS 941	10287	USSR	24 AUG	114.6	74.0	1460	1411			
1977 079D		COSMOS 942	10288	USSR	24 AUG	115.9	74.0	1530	1460			
1977 079E		COSMOS 943	10289	USSR	24 AUG	115.0	74.0	1460	1448			
1977 079F		COSMOS 944	10290	USSR	24 AUG	115.2	74.0	1469	1459			
1977 079G		COSMOS 945	10291	USSR	24 AUG	115.4	74.0	1489	1460			
1977 079H		COSMOS 946	10292	USSR	24 AUG	115.6	74.0	1508	1460			
1977 079J			10293	USSR	24 AUG	117.5	74.0	1675	1460			
1977 080A		SIRIO	10294	ITALY	25 AUG	1436.4	5.9	35897	35687			
1977 080B			10295	US	25 AUG	115.5	27.1	2082	875			
1977 082A		MOLNIYA 1-36	10315	USSR	30 AUG	682.1	62.7	38032	547			
1977 082E			10316	USSR	30 AUG	634.4	63.9	35919	238			
1977 084A		VOYAGER 1	10321	US	5 SEP	HELIOCENTRIC ORBIT						
1977 084B			10322	US	5 SEP	HELIOCENTRIC ORBIT						
1977 084C			10323	US	5 SEP	HELIOCENTRIC ORBIT						
1977 087A		COSMOS 951	10352	USSR	13 SEP	104.8	83.0	1011	959			
1977 087B			10355	USSR	13 SEP	104.7	83.0	1006	954			
1977 088A		COSMOS 952	10358	USSR	16 SEP	104.1	64.9	998	904			
1977 091A		COSMOS 955	10362	USSR	20 SEP	95.9	81.2	565	555			
1977 091B			10363	USSR	20 SEP	95.9	81.2	595	533			
1977 092A		EKRAH	10365	USSR	20 SEP	1436.4	9.9	35956	35629			
1977 092G			11571	USSR	20 SEP	1421.8	9.7	35550	35460			
1977 093A		PROGNOL 6	10370	USSR	22 SEP	ELEMENTS NOT AVAILABLE						
1977 102D			10425	US	22 OCT	CURRENT ELEMENTS NOT MAINTAINED						
1977 105A		MOLNIYA 3-8	10455	USSR	28 OCT	718.0	63.4	38497	1866			
1977 105E			10485	USSR	28 OCT	731.5	63.7	38648	2182			
1977 106A		NNSS 30110	10457	US	28 OCT	106.8	89.7	1098	1060			
1977 106B			10462	US	28 OCT	106.9	89.7	1098	1063			
1977 106C			12858	US	28 OCT	106.9	89.5	1097	1068			
1977 107A		COSMOS 962	10459	USSR	28 OCT	104.8	83.0	1002	963			
1977 107B			10461	USSR	28 OCT	104.6	83.0	999	953			
1977 108A		METEOSAT 1	10489	ESA	23 NOV	1436.4	9.0	35824	35761			
1977 108B			10490	US	23 NOV	115.6	29.3	2473	492			
1977 108C			10950	US	23 NOV	136.1	27.1	4602	168			
1977 109A		COSMOS 963	10950	USSR	24 NOV	109.2	82.9	1206	1174			
1977 109B			10492	USSR	24 NOV	109.1	82.9	1200	1169			
1977 112A			10502	US	8 DEC	ELEMENTS NOT AVAILABLE						
1977 112B			10504	US	9 DEC	ELEMENTS NOT AVAILABLE						

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OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1977 LAUNCHES (CONT.)										
1977 112C		10528	US	8 DEC	ELEMENTS NOT AVAILABLE					
1977 112D		10529	US	8 DEC	ELEMENTS NOT AVAILABLE					
1977 112E		10544	US	8 DEC	ELEMENTS NOT AVAILABLE					
1977 112F		10594	US	8 DEC	ELEMENTS NOT AVAILABLE					
1977 112G		10595	US	8 DEC	ELEMENTS NOT AVAILABLE					
1977 112H		12859	US	8 DEC	ELEMENTS NOT AVAILABLE					
1977 114A		10508	US	11 DEC	ELEMENTS NOT AVAILABLE					
1977 114B		10509	US	11 DEC	CURRENT ELEMENTS NOT MAINTAINED					
1977 116A	COSMOS 967	10512	USSR	13 DEC	104.7	65.8	1003	95.9		
1977 116B		10513	USSR	13 DEC	104.5	65.8	999	94.4		
1977 116C		10518	USSR	13 DEC	104.6	65.8	998	95.5		
1977 116D		10526	USSR	13 DEC	104.8	65.8	1010	96.0		
1977 117A		10514	USSR	14 DEC	102.2	81.2	875	85.0		
1977 117B	METEOR 2-3	10515	USSR	14 DEC	102.3	81.2	900	83.3		
1977 117C		14950	USSR	14 DEC	102.3	81.2	899	83.4		
1977 118A	SAKURA	10516	JAPAN	15 DEC	1455.9	7.4	36176	36169		
1977 118B		10517	US	15 DEC	109.8	28.7	1948	48.5		
1977 118C		10519	US	15 DEC	110.1	29.1	1917	54.3		
1977 119A	COSMOS 968	10520	USSR	16 DEC	100.5	74.0	795	76.9		
1977 119B		10521	USSR	16 DEC	100.3	74.0	788	75.6		
1977 119C		10524	USSR	16 DEC	100.3	74.0	785	75.9		
1977 119D		10525	USSR	16 DEC	100.3	74.0	788	76.0		
1977 119E		18512	USSR	16 DEC	100.2	74.0	773	75.8		
1977 121A	COSMOS 970	10531	USSR	21 DEC	105.9	65.9	1136	93.5		
1977 121B - 121BY			USSR	21 DEC	SEE NOTE		27*			27*
1977 121BW		20032	USSR	21 DEC	108.5	65.7	1754	56.3		
1977 122A	COSMOS 971	10536	USSR	23 DEC	104.9	82.9	1005	97.1		
1977 122B		10537	USSR	23 DEC	104.7	82.9	997	96.5		
1977 123A	COSMOS 972	10539	USSR	27 DEC	103.7	75.8	1159	71.0		
1977 123B		10541	USSR	27 DEC	103.7	75.8	1157	71.0		
1978 LAUNCHES										
1978 002A	INTELSAT 4A F-3	10557	ITSO	7 JAN	1441.5	4.1	35906	35877		
1978 002B		10722	US	17 JAN	650.4	21.1	36309	66.9		
1978 004A	COSMOS 975	10561	USSR	10 JAN	96.1	81.2	576	56.4		
1978 004B		10582	USSR	10 JAN	96.4	81.2	619	54.9		
1978 005A	COSMOS 976	10581	USSR	10 JAN	115.1	74.0	1462	145.3		
1978 005B	COSMOS 977	10584	USSR	10 JAN	114.4	74.0	1461	139.8		
1978 005C	COSMOS 978	10585	USSR	10 JAN	114.6	74.0	1462	141.6		
1978 005D	COSMOS 979	10586	USSR	10 JAN	114.9	74.0	1462	143.5		
1978 005E	COSMOS 980	10587	USSR	10 JAN	115.3	74.0	1473	146.1		
1978 005F	COSMOS 981	10588	USSR	10 JAN	115.5	74.0	1493	146.2		
1978 005G	COSMOS 982	10589	USSR	10 JAN	115.7	74.0	1513	146.1		
1978 005H	COSMOS 983	10590	USSR	10 JAN	116.0	74.0	1536	146.1		
1978 005J		10591	USSR	10 JAN	117.7	74.0	1691	146.1		
1978 007A	COSMOS 985	10599	USSR	17 JAN	104.6	82.9	1017	93.5		
1978 007B		10600	USSR	17 JAN	104.5	82.9	1008	93.4		
1978 009A	MOLNIYA 3-9	10605	USSR	24 JAN	636.8	63.3	36195	8.5		
1978 009E		10802	USSR	24 JAN	651.4	63.6	36926	10.3		

ORIGINAL PAGE IS
OF POOR QUALITY

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1978 LAUNCHES (CONT.)										
1978 012A	IUE	10637	US	26 JAN	1436.4	32.1	42035	29551		
1978 012C		10723	US	26 JAN	612.8	29.6	34722	315		
1978 014A	KYOKKO	10664	JAPAN	4 FEB	134.1	65.4	3960	636		
1978 014C		12329	JAPAN	4 FEB	133.9	65.3	3936	643		
1978 014D		12330	JAPAN	4 FEB	134.1	65.4	3965	632		
1978 014E		12331	JAPAN	4 FEB	132.9	64.8	3868	628		
1978 014F		12406	JAPAN	4 FEB	133.4	65.9	3887	650		
1978 016A	FLTSATCOM 1	10669	US	9 FEB	1436.0	9.2	35800	35770		
1978 016C		12908	US	9 FEB	216.5	26.5	10868	261		
1978 018A	UME 2	10674	JAPAN	16 FEB	107.2	69.4	1216	974		
1978 018B		10675	JAPAN	16 FEB	107.1	69.4	1212	974		
1978 018C		13132	JAPAN	16 FEB	107.9	69.2	1288	970		
1978 019A	COSMOS 990	10676	USSR	17 FEB	100.5	74.0	794	768		
1978 019B		10677	USSR	17 FEB	100.3	74.0	785	761		
1978 019C		14803	USSR	17 FEB	99.8	74.0	754	741		
1978 019D		13500	USSR	17 FEB	100.4	74.1	786	763		
1978 019E		18501	USSR	17 FEB	100.4	74.1	789	765		
1978 020A		10684	US	22 FEB	718.0	63.7	20491	19872		
1978 020B		10801	US	22 FEB	268.4	63.9	14095	714		
1978 020C		18598	US	22 FEB	251.1	63.7	12941	671		
1978 021A		10688	US	25 FEB						
1978 021B		10689	US	25 FEB						
1978 022A	COSMOS 991	10692	USSR	28 FEB	104.6	83.0	1003	951		
1978 022B		10693	USSR	28 FEB	104.6	83.0	989	959		
1978 024A	MOLNIYA 1-39	10696	USSR	2 MAR	717.8	62.0	39703	654		
1978 024D		10803	USSR	2 MAR	729.0	62.3	40233	674		
1978 026A	LANDSAT 3	10702	US	5 MAR	103.1	98.8	918	895		
1978 026B	AMSAT-OSCAR-8	10703	US	5 MAR	103.0	99.0	905	895		
1978 026C -	026HT									
1978 026HS										
1978 026HS		20029	USSR	5 MAR	101.3	98.6	882	762		
1978 028A	COSMOS 994	10731	USSR	15 MAR	104.9	82.9	1005	971		
1978 028B		10732	USSR	15 MAR	104.7	82.9	994	968		
1978 029B		10734	US	16 MAR						
1978 031A	COSMOS 996	10744	USSR	28 MAR	104.6	82.9	1003	949		
1978 031B		10745	USSR	28 MAR	104.5	82.9	995	945		
1978 034A	COSMOS 1000	10776	USSR	31 MAR	104.7	82.9	1006	955		
1978 034B		10777	USSR	31 MAR	104.6	82.9	993	956		
1978 035A	INTELSAT 4A F-6	10778	ITSO	31 MAR	1437.2	1.9	35983	35631		
1978 035B		10779	US	31 MAR	648.2	21.7	36267	595		
1978 038A		10787	US	7 APR						
1978 038B		10788	US	7 APR						
1978 039A	YURI	10792	JAPAN	7 APR	1433.7	4.5	37702	37775		
1978 039B		10793	US	7 APR	111.1	28.2	1979	572		
1978 039C		10794	US	7 APR	227.6	26.9	11687	250		
1978 042A		10820	US	1 MAY	100.9	98.6	807	794		
1978 042B		10853	US	1 MAY	98.1	98.3	675	662		
1978 042C		10854	US	1 MAY	98.4	98.3	686	640		
1978 044A	OTS-2	10855	ESA	11 MAY	1436.2	6.1	35801	35778		
1978 044B		10856	US	11 MAY	139.9	27.9	3527	1571		
1978 044C		10857	US	11 MAY						

OBJCTS IN ORBIT										NOTES	
INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)		
1978 LAUNCHES (CONT.)											
1978 045A	COSMOS 1005	10860	USSR	12 MAY	95.8	81.2	567	547			
1978 045B		10861	USSR	12 MAY	96.5	81.2	622	558			
1978 047A		10893	US	13 MAY	718.0	64.4	20615	19750			
1978 047B		10894	US	13 MAY	286.8	64.0	15288	768			
1978 051A	PIONEER VENUS ORBITER	10911	US	20 MAY	ELEMENTS NOT AVAILABLE						
1978 051B		10912	US	20 MAY	HELIOCENTRIC ORBIT						
1978 053A	COSMOS 1011	10917	USSR	23 MAY	104.7	82.9	1009	953			
1978 053B		10918	USSR	23 MAY	104.6	82.9	999	952			
1978 055A	MOLNIYA 1-40	10925	USSR	2 JUN	717.7	63.3	38531	1819			
1978 055E		10949	USSR	2 JUN	732.5	63.5	39113	1965			
1978 056A	COSMOS 1013	10930	USSR	7 JUN	116.3	74.0	1552	1476			
1978 056B		10931	USSR	7 JUN	116.1	74.0	1528	1477			
1978 056C	COSMOS 1014	10932	USSR	7 JUN	115.8	74.0	1514	1472			
1978 056D	COSMOS 1015	10933	USSR	7 JUN	115.6	74.0	1496	1469			
1978 056E	COSMOS 1016	10934	USSR	7 JUN	115.4	74.0	1490	1456			
1978 056F	COSMOS 1017	10935	USSR	7 JUN	115.2	74.0	1486	1440			
1978 056G	COSMOS 1018	10936	USSR	7 JUN	115.0	74.0	1486	1422			
1978 056H	COSMOS 1019	10937	USSR	7 JUN	114.8	74.0	1482	1405			
1978 056J	COSMOS 1020	10938	USSR	7 JUN	117.9	74.0	1690	1478			
1978 058A		10941	US	10 JUN	CURRENT ELEMENTS NOT MAINTAINED						
1978 058B		10942	US	10 JUN	CURRENT ELEMENTS NOT MAINTAINED						
1978 062A	GOES 3	10953	US	16 JUN	1436.0	6.7	35808	35759			
1978 062B		10954	US	16 JUN	107.6	28.4	1674	556			
1978 063A	COSMOS 1023	10961	USSR	21 JUN	100.5	74.1	790	770			
1978 063B		10962	USSR	21 JUN	100.3	74.1	789	753			
1978 063C		14804	USSR	21 JUN	99.2	74.0	732	712			
1978 063D		13497	USSR	21 JUN	100.6	74.1	802	772			
1978 064A	SEASAT 1	10967	US	27 JUN	100.3	108.0	772	769			
1978 066A	COSMOS 1024	10970	USSR	28 JUN	717.8	67.8	34771	5584			
1978 066D		10998	USSR	28 JUN	720.3	67.9	35045	5431			
1978 067A	COSMOS 1025	10973	USSR	28 JUN	96.6	82.5	603	584			
1978 067B		10974	USSR	28 JUN	97.3	82.5	644	615			
1978 068A	COMSTAR 3	10975	US	29 JUN	1451.7	3.9	36179	36003			
1978 068B		10976	US	29 JUN	549.0	22.0	36277	628			
1978 071A	ESA GEOS 2	10981	ESA	14 JUL	1449.3	8.9	36317	35771			
1978 071C		10983	US	14 JUL	455.4	25.7	26233	227			
1978 072A	MOLNIYA 1-41	10984	USSR	14 JUL	685.5	62.1	38418	331			
1978 072D		11073	USSR	14 JUL	696.0	62.4	39050	225			
1978 073A	RADUGA 4	10987	USSR	18 JUL	1435.0	9.4	35827	35704			
1978 073D		11074	USSR	18 JUL	565.8	46.0	32099	466			
1978 073E		11941	USSR	18 JUL	1475.9	9.7	36635	36490			
1978 074A	COSMOS 1027	10991	USSR	27 JUL	104.6	82.9	996	958			
1978 074B		10992	USSR	27 JUL	104.6	82.9	986	960			
1978 075A		10993	US	5 AUG	ELEMENTS NOT AVAILABLE						
1978 075B		10994	US	5 AUG	CURRENT ELEMENTS NOT MAINTAINED						
1978 078C		11003	US	8 AUG	HELIOCENTRIC ORBIT						
1978 079A	ICE	11004	US	12 AUG	HELIOCENTRIC ORBIT						
1978 079C		11006	US	12 AUG	CURRENT ELEMENTS NOT MAINTAINED						
1978 079D		13413	US	12 AUG	ELEMENTS NOT AVAILABLE						

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OF POOR QUALITY

OBJECTS IN ORBIT

INTER-NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ. (MHz)	NOTES
1979 LAUNCHES (CONT.)										
1978 080A	MOLNIYA 1-42	11007	USSR	22 AUG	717.7	63.9	39292	1059		
1978 080D		11075	USSR	22 AUG	732.4	64.2	39503	1569		
1978 083A	COSMOS 1030	11015	USSR	6 SEP	717.0	67.6	36185	4131		
1978 083D		11076	USSR	6 SEP	723.6	65.0	36934	3708		
1978 083E		12907	USSR	6 SEP	711.4	64.0	36813	3227		
1978 083F		12919	USSR	6 SEP	719.5	64.0	37421	3020		
1978 083G		13959	USSR	6 SEP	721.7	63.7	37601	2948		
1978 084A	VENERA 11	11020	USSR	9 SEP	HELIOCENTRIC ORBIT					
1978 086A	VENERA 12	11025	USSR	14 SEP	HELIOCENTRIC ORBIT					
1978 087A	JIKI*KEN	11027	JAPAN	16 SEP	398.5	31.2	22870	250		
1978 087B		11028	JAPAN	16 SEP	365.8	31.2	20895	231		
1978 091A	COSMOS 1034	11042	USSR	4 OCT	114.9	74.0	1479	1420		
1978 091B	COSMOS 1035	11044	USSR	4 OCT	114.6	74.0	1478	1400		
1978 091C	COSMOS 1036	11045	USSR	4 OCT	115.1	74.0	1478	1440		
1978 091D	COSMOS 1037	11046	USSR	4 OCT	115.3	74.0	1479	1460		
1978 091E	COSMOS 1038	11047	USSR	4 OCT	115.5	74.0	1484	1475		
1978 091F	COSMOS 1039	11048	USSR	4 OCT	116.3	74.0	1550	1476		
1978 091G	COSMOS 1040	11049	USSR	4 OCT	116.0	74.0	1526	1476		
1978 091H	COSMOS 1041	11050	USSR	4 OCT	115.8	74.0	1507	1475		
1978 091I		11051	USSR	4 OCT	117.9	74.0	1697	1479		
1978 091J		11054	US	7 OCT	718.0	64.0	20416	19946		
1978 093A		11078	US	7 OCT	196.4	63.0	9455	175		
1978 093B	COSMOS 1043	11055	USSR	10 OCT	95.5	81.2	544	535		
1978 094A		11056	USSR	10 OCT	95.9	81.2	597	525		
1978 094B		11057	USSR	13 OCT	718.0	63.1	38875	1490		
1978 095A	MOLNIYA 3-10	11079	USSR	13 OCT	734.3	63.2	39772	1392		
1978 095E		11060	US	13 OCT	101.7	98.9	849	832		
1978 096A	TIR03-N	11061	US	13 OCT	100.7	98.8	796	788		
1978 096B		11062	US	13 OCT	100.7	98.8	794	784		
1978 096C		11060	US	24 OCT	104.0	99.2	955	942		
1978 098A	NIMBUS 7	11081	US	24 OCT	104.0	99.5	968	925		
1978 098B	CAMEO	11084	USSR	26 OCT	120.3	82.6	1702	1683		
1978 100A	COSMOS 1045	11085	USSR	26 OCT	120.3	82.6	1704	1683		
1978 100B	RADIO 1	11086	USSR	26 OCT	120.3	82.6	1703	1683		
1978 100C	RADIO 2	11087	USSR	26 OCT	120.2	82.6	1699	1684		
1978 100D		11037	USSR	26 OCT	SEE NOTE 29*					
1978 100E		11111	USSR	16 NOV	100.6	74.0	800	773		
1978 105A	COSMOS 1048	11112	USSR	16 NOV	100.5	74.0	808	755		
1978 105B		11113	USSR	16 NOV	100.3	74.0	779	762		
1978 105C		11114	USSR	16 NOV	100.1	74.0	770	754		
1978 105D		11115	NATO	19 NOV	1436.2	4.7	35805	35770		
1978 106A	NATO 111-C	11116	USSR	5 DEC	114.6	74.0	1484	1392		
1978 106B	COSMOS 1051	11117	USSR	5 DEC	114.8	74.0	1486	1408		
1978 106C	COSMOS 1052	11118	USSR	5 DEC	115.0	74.0	1485	1427		
1978 106D	COSMOS 1053	11119	USSR	5 DEC	115.2	74.0	1487	1444		
1978 106E	COSMOS 1054	11120	USSR	5 DEC	115.5	74.0	1489	1462		
1978 106F	COSMOS 1055	11121	USSR	5 DEC	115.7	74.0	1502	1469		
1978 106G	COSMOS 1056	11122	USSR	5 DEC	115.9	74.0	1513	1478		
1978 106H	COSMOS 1057	11123	USSR	5 DEC	116.1	74.0	1535	1478		
1978 106I	COSMOS 1058	11124	USSR	5 DEC	118.1	74.0	1705	1484		

29*

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ. (MHZ)	NOTES
1978 LAUNCHES (CONT.)										
1978 112A		11141	US	11 DEC	718.0	63.7	20343	20021		
1978 112B		11142	US	11 DEC	269.8	63.5	14418	489		
1978 113A		11144	US	14 DEC	1435.4	6.7	35838	35707		
1978 113B		11145	US	14 DEC	1439.6	6.5	35871	35797		
1978 113D		11147	US	14 DEC	1339.2	3.9	35596	32137		
1978 116A	ANIK 81	11153	CANADA	16 DEC	1442.8	3.4	35920	35915		
1978 117A	COSMOS 1063	11155	USSR	19 DEC	96.0	81.2	568	566		
1978 117B		11156	USSR	19 DEC	96.1	81.2	607	532		
1978 118A	GORIZONT 1	11158	USSR	19 DEC	1436.2	18.9	49988	21588		
1978 118C		11926	USSR	19 DEC	1417.4	18.9	49271	21569		
1978 121A	COSMOS 1066	11155	USSR	23 DEC	102.1	81.2	894	820		
1978 121B		11166	USSR	23 DEC	101.9	81.2	900	800		
1978 121C		19643	USSR	23 DEC	101.9	81.2	898	800		
1978 122A	COSMOS 1067	11168	USSR	26 DEC	109.0	83.0	1209	1155		
1978 122B		11170	USSR	26 DEC	108.9	83.0	1194	1157		
1979 LAUNCHES										
1979 003A	COSMOS 1072	11238	USSR	16 JAN	104.8	82.9	1014	956		
1979 003B		11239	USSR	16 JAN	104.7	82.9	1012	948		
1979 004A	MOLNIYA 3-11	11240	USSR	18 JAN	718.0	64.0	38315	2047		
1979 004D		11553	USSR	18 JAN	733.0	64.2	38687	2414		
1979 005A	METEOR 1-29	11251	USSR	25 JAN	96.6	97.5	627	569		
1979 005B		11252	USSR	25 JAN	95.8	97.5	565	545		
1979 007A	SCATHA	11256	US	30 JAN	1415.7	7.1	42328	28443		
1979 009A	AYAME 1	11261	JAPAN	6 FEB	1312.7	1.5	37340	29329		
1979 011A	COSMOS 1076	11266	USSR	12 FEB	96.2	82.5	589	567		
1979 011B		11267	USSR	12 FEB	97.3	82.5	641	612		
1979 012A	COSMOS 1077	11268	USSR	13 FEB	95.8	81.2	558	551		
1979 012B		11269	USSR	13 FEB	95.9	81.2	601	524		
1979 015A	EKRAN 3	11273	USSR	21 FEB	1436.9	9.1	35954	35649		
1979 015D		13900	USSR	21 FEB	1421.0	9.9	35559	35420		
1979 017A	SOLWIND	11278	US	24 FEB	94.2	97.9	493	467		
1979 017A - 017LZ			US	24 FEB	SEE NOTE	30*				30*
1979 020A	INTERCOSMOS 19	11285	USSR	27 FEB	97.6	74.0	813	473		
1979 020B		11286	USSR	27 FEB	97.7	74.0	830	471		
1979 021A	METEOR 2-4	11288	USSR	1 MAR	102.1	81.2	873	838		
1979 021B		11289	USSR	1 MAR	102.1	81.2	913	801		
1979 021C		11290	USSR	1 MAR	102.1	81.2	886	832		
1979 021D		14532	USSR	1 MAR	102.9	81.3	933	853		
1979 024A	COSMOS 1081	11296	USSR	15 MAR	114.5	74.0	1463	1402		
1979 024B	COSMOS 1082	11297	USSR	15 MAR	114.7	74.0	1463	1421		
1979 024C	COSMOS 1083	11298	USSR	15 MAR	114.9	74.0	1463	1440		
1979 024D	COSMOS 1084	11299	USSR	15 MAR	115.1	74.0	1462	1459		
1979 024E	COSMOS 1085	11300	USSR	15 MAR	115.6	74.0	1501	1464		
1979 024F	COSMOS 1086	11301	USSR	15 MAR	115.4	74.0	1480	1463		
1979 024G	COSMOS 1087	11302	USSR	15 MAR	115.8	74.0	1522	1463		
1979 024H	COSMOS 1088	11303	USSR	15 MAR	116.1	74.0	1544	1464		
1979 024J		11304	USSR	15 MAR	117.6	74.0	1698	1464		
1979 025B		11306	US	16 MAR	ELEMENTS NOT AVAILABLE					

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1979 LAUNCHES (CONT.)										
1979 026A	COSMOS 1089	11308	USSR	21 MAR	104.7	83.0	997	966		
1979 026B		11309	USSR	21 MAR	104.6	83.0	989	962		
1979 028A	COSMOS 1091	11320	USSR	7 APR	104.8	82.9	1005	961		
1979 028B		11321	USSR	7 APR	104.7	82.9	991	965		
1979 030A	COSMOS 1092	11326	USSR	11 APR	104.7	82.9	1002	960		
1979 030B		11327	USSR	11 APR	104.6	82.9	997	956		
1979 031A	MOLNIYA 1-43	11328	USSR	12 APR	100.4	63.7	1460	99		
1979 031D		11351	USSR	12 APR	671.0	64.1	37931	91		
1979 032A	COSMOS 1093	11331	USSR	14 APR	95.6	81.2	553	546		
1979 032B		11332	USSR	14 APR	96.3	81.2	622	542		
1979 035A	RADUGA 5	11343	USSR	25 APR	1436.3	8.4	35805	35776		
1979 035E		17873	USSR	25 APR	1437.5	9.0	35917	35709		
1979 038A	FLTSATCOM 2	11353	US	4 MAY	1436.2	6.8	35822	35753		
1979 046A	COSMOS 1104	11378	USSR	31 MAY	104.7	82.9	1006	953		
1979 046B		11379	USSR	31 MAY	104.6	82.9	990	959		
1979 047A	UK 6	11382	UK	2 JUN	93.1	55.0	438	418		
1979 048A	MOLNIYA 3-12	11384	USSR	5 JUN	656.8	63.4	37174	127		
1979 048D		11554	USSR	5 JUN	150.3	64.0	5847	122		
1979 050A		11389	US	6 JUN	ELEMENTS NOT AVAILABLE					
1979 050B		11403	US	6 JUN	ELEMENTS NOT AVAILABLE					
1979 050C		11408	US	6 JUN	ELEMENTS NOT AVAILABLE					
1979 050D		11410	US	6 JUN	ELEMENTS NOT AVAILABLE					
1979 050G		11534	US	6 JUN	ELEMENTS NOT AVAILABLE					
1979 053A		11397	US	10 JUN	ELEMENTS NOT AVAILABLE					
1979 053C		11436	US	10 JUN	ELEMENTS NOT AVAILABLE					
1979 053D		20364	US	10 JUN	ELEMENTS NOT AVAILABLE					
1979 057A	NOAA 6	11416	US	27 JUN	100.9	98.5	809	791		
1979 057B		11419	US	27 JUN	99.9	98.4	757	752		
1979 057C		11634	US	27 JUN	99.8	98.3	753	748		
1979 058A	COSMOS 1109	11417	USSR	27 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1979 058E		11555	USSR	27 JUN	721.7	67.5	37803	2744		
1979 058F		12833	USSR	27 JUN	715.1	67.3	37504	2718		
1979 058G		12834	USSR	27 JUN	718.9	68.0	35629	4780		
1979 058H		12909	USSR	27 JUN	719.6	68.2	39114	1329		
1979 058J		12995	USSR	27 JUN	698.9	66.3	38251	1169		
1979 060A	COSMOS 1110	13960	USSR	27 JUN	720.5	67.3	37953	2534		
1979 060B		11425	USSR	28 JUN	100.7	74.0	801	779		
1979 060C		11427	USSR	28 JUN	100.5	74.0	798	766		
1979 060D		14866	USSR	28 JUN	99.9	74.1	758	752		
1979 062A	GORIZONT 2	15784	USSR	28 JUN	100.3	74.0	775	768		
1979 062D		11440	USSR	5 JUL	1436.2	8.4	35795	35783		
1979 067A	COSMOS 1116	11405	USSR	5 JUL	1474.4	8.7	36558	36507		
1979 067B		11457	USSR	20 JUL	95.0	81.2	532	505		
1979 070A	MOLNIYA 1-44	11458	USSR	20 JUL	95.7	81.2	587	521		
1979 070D		11474	USSR	31 JUL	717.9	63.9	38114	2244		
1979 072A	WESTAR 3	11556	USSR	31 JUL	733.1	64.2	38674	2434		
1979 077A	COSMOS 1124	11484	US	10 AUG	1440.7	2.2	35911	35841		
1979 077D		11509	USSR	28 AUG	716.5	68.2	35708	4583		
1979 077E		11550	USSR	28 AUG	723.9	68.2	36122	4531		
		12814	USSR	28 AUG	612.5	63.3	33209	1813		

OBJECTS IN ORBIT														
INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES				
1979 LAUNCHES (CONT.)														
1979 077F		12815	USSR	28 AUG	708.7	64.3	36960	2947						
1979 077G		12816	USSR	28 AUG	686.5	63.6	36895	1904						
1979 077H		12817	USSR	28 AUG	720.6	63.3	37929	2564						
1979 078A	COSMOS 1125	11510	USSR	28 AUG	100.7	74.0	800	781						
1979 078B		11511	USSR	28 AUG	100.5	74.0	796	770						
1979 078C		14805	USSR	28 AUG	99.9	74.1	759	751						
1979 078D		14806	USSR	28 AUG	100.8	74.0	798	789						
1979 078E		18650	USSR	28 AUG	99.9	74.1	758	744						
1979 084A	COSMOS 1130	11538	USSR	25 SEP	114.6	74.0	1478	1395						
1979 084B	COSMOS 1131	11539	USSR	25 SEP	114.8	74.0	1480	1409						
1979 084C	COSMOS 1132	11540	USSR	25 SEP	114.9	74.0	1480	1423						
1979 084D	COSMOS 1133	11541	USSR	25 SEP	115.1	74.0	1481	1437						
1979 084E	COSMOS 1134	11542	USSR	25 SEP	115.3	74.0	1482	1451						
1979 084F	COSMOS 1135	11543	USSR	25 SEP	115.4	74.0	1490	1459						
1979 084G	COSMOS 1136	11544	USSR	25 SEP	115.6	74.0	1495	1470						
1979 084H	COSMOS 1137	11545	USSR	25 SEP	115.8	74.0	1512	1470						
1979 084J		11546	USSR	25 SEP	117.8	74.0	1682	1480						
1979 086A		11558	US	1 OCT	ELEMENTS NOT AVAILABLE									
1979 086C		11560	US	1 OCT	ELEMENTS NOT AVAILABLE									
1979 087A	EKRAN 4	11561	USSR	3 OCT	1436.8	8.6	35908	35691						
1979 087C		17939	USSR	3 OCT	1433.4	8.5	35819	35648						
1979 089A	COSMOS 1140	11573	USSR	11 OCT	100.5	74.1	792	768						
1979 089B		11574	USSR	11 OCT	100.3	74.1	785	759						
1979 089C		14807	USSR	11 OCT	99.9	74.1	760	746						
1979 089D		14345	USSR	11 OCT	100.3	74.0	787	760						
1979 089E		19048	USSR	11 OCT	100.4	74.0	793	763						
1979 090A	COSMOS 1141	11585	USSR	16 OCT	104.6	82.9	998	952						
1979 090B		11586	USSR	16 OCT	104.5	82.9	990	947						
1979 090C		11587	USSR	16 OCT	103.1	82.9	922	885						
1979 091A	MOLNIYA 1-45	11589	USSR	20 OCT	717.9	63.4	39899	460						
1979 091D		11602	USSR	20 OCT	732.2	63.9	40574	489						
1979 093A	COSMOS 1143	11600	USSR	26 OCT	96.2	81.2	588	567						
1979 093B		11601	USSR	26 OCT	96.4	81.2	617	554						
1979 095A	METEOR 2-5	11605	USSR	31 OCT	102.4	81.2	880	863						
1979 095B		11608	USSR	31 OCT	102.5	81.2	915	834						
1979 098A		11621	US	21 NOV	1436.0	6.2	35792	35777						
1979 098B		11622	US	21 NOV	1436.1	6.3	35790	35782						
1979 098C		11623	US	21 NOV	1510.8	7.5	38505	35967						
1979 099A	COSMOS 1145	11629	USSR	27 NOV	95.9	81.2	565	553						
1979 099B		11630	USSR	27 NOV	96.2	81.2	616	538						
1979 101A	RCA SATCOM III	11635	US	7 DEC	789.0	9.7	35607	8202						
1979 105A	GORIZONT 3	11648	USSR	28 DEC	1435.2	8.2	35783	35755						
1979 105E		11684	USSR	28 DEC	1459.3	9.3	36304	36172						

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLIN- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1980 LAUNCHES (CONT.)										
1980 004A	FLTSATCOM 3	11659	US	18 JAN	1436.2	6.2	35806	35769		
1980 005A	COSMOS 1151	11671	USSR	23 JAN	96.9	82.5	620	597		
1980 005B		11672	USSR	23 JAN	97.3	82.5	644	615		
1980 007A	COSMOS 1153	11630	USSR	25 JAN	104.8	82.9	1015	958		
1980 007B		11681	USSR	25 JAN	104.7	82.9	1008	953		
1980 008A	COSMOS 1154	11682	USSR	30 JAN	96.4	81.2	588	580		
1980 008B		11683	USSR	30 JAN	96.5	81.2	632	553		
1980 011A		11690	US	9 FEB	718.0	64.2	20484	19880		
1980 011B		11705	US	9 FEB	289.8	63.5	15759	495		
1980 012A	COSMOS 1156	11691	USSR	11 FEB	114.5	74.0	1472	1396		
1980 012B	COSMOS 1157	11692	USSR	11 FEB	114.8	74.0	1475	1413		
1980 012C	COSMOS 1158	11693	USSR	11 FEB	115.0	74.0	1474	1432		
1980 012D	COSMOS 1159	11694	USSR	11 FEB	115.2	74.0	1476	1448		
1980 012E	COSMOS 1160	11695	USSR	11 FEB	115.4	74.0	1481	1463		
1980 012F	COSMOS 1161	11696	USSR	11 FEB	115.6	74.0	1500	1465		
1980 012G	COSMOS 1162	11697	USSR	11 FEB	115.8	74.0	1517	1469		
1980 012H	COSMOS 1163	11698	USSR	11 FEB	116.1	74.0	1541	1468		
1980 012J		11699	USSR	11 FEB	117.8	74.0	1692	1467		
1980 016A	RADUGA 5	11708	USSR	20 FEB	1436.5	8.4	35839	35750		
1980 016B		11728	USSR	20 FEB	1475.1	9.6	36606	36486		
1980 018A		11715	JAPAN	22 FEB	1386.6	1.4	36839	32785		
1980 018C		11718	JAPAN	22 FEB	355.9	24.4	20276	241		
1980 019A	AYAME 2	11720	US	3 MAR	ELEMENTS NOT AVAILABLE					
1980 019B		11721	US	3 MAR	ELEMENTS NOT AVAILABLE					
1980 019C		11731	US	3 MAR	ELEMENTS NOT AVAILABLE					
1980 019D		11732	US	3 MAR	ELEMENTS NOT AVAILABLE					
1980 019E		11733	US	3 MAR	ELEMENTS NOT AVAILABLE					
1980 019F		11734	US	3 MAR	ELEMENTS NOT AVAILABLE					
1980 019G		11745	US	3 MAR	ELEMENTS NOT AVAILABLE					
1980 019H		11746	US	3 MAR	ELEMENTS NOT AVAILABLE					
1980 022A	COSMOS 1168	11735	USSR	17 MAR	104.7	82.9	1009	956		
1980 022B		11736	USSR	17 MAR	104.6	82.9	1002	952		
1980 022C		12404	USSR	17 MAR	103.6	82.9	951	906		
1980 026A	COSMOS 1171	11750	USSR	3 APR	104.8	65.8	1005	966		
1980 026B		11751	USSR	3 APR	104.6	65.8	984	979		
1980 026C		11752	USSR	3 APR	104.8	65.8	1005	963		
1980 028A	COSMOS 1172	11758	USSR	12 APR	718.0	65.1	37256	3108		
1980 028E		11762	USSR	12 APR	722.1	66.7	37837	2730		
1980 030A	COSMOS 1174	11765	USSR	18 APR	103.8	66.1	1495	381		
1980 030B	- 030AY				SEE NOTE					
1980 032A		11793	US	26 APR	717.9	63.7	20581	19780		
1980 032B		11791	US	26 APR	241.0	63.2	12643	253		
1980 034A	COSMOS 1176	11798	USSR	29 APR	103.4	64.8	963	874		
1980 034B		11971	USSR	29 APR	103.1	64.8	942	866		
1980 039A	COSMOS 1181	11903	USSR	20 MAY	104.8	82.9	1003	969		
1980 039B		11904	USSR	20 MAY	104.7	82.9	994	964		
1980 044A	COSMOS 1184	11921	USSR	4 JUN	96.2	81.2	589	567		
1980 044B		11922	USSR	4 JUN	96.7	81.2	632	571		
1980 049A	GORIZONT 4	11841	USSR	14 JUN	1460.0	7.9	36268	36239		
1980 049F		11862	USSR	14 JUN	1470.4	8.1	36592	36316		

31*

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1980 LAUNCHES (CONT.)										
1980 050A	COSMOS 1188	11844	USSR	14 JUN	717.6	67.4	36443	3900		
1980 050B		11847	USSR	14 JUN	722.9	67.5	36682	3925		
1980 051A	METEOR 1-30	11848	USSR	18 JUN	94.9	97.7	533	493		
1980 051B		11849	USSR	18 JUN	96.6	97.5	621	572		
1980 052C		11852	US	18 JUN	ELEMENTS NOT AVAILABLE					
1980 053A	MOLNIYA 1-47	11856	USSR	21 JUN	717.3	64.2	40048	284		
1980 053D		11861	USSR	21 JUN	733.0	64.6	40684	417		
1980 056A	COSMOS 1190	11869	USSR	1 JUL	100.6	74.0	796	780		
1980 056B		11870	USSR	1 JUL	100.5	74.0	795	770		
1980 056C		14808	USSR	1 JUL	101.0	74.0	821	793		
1980 056D		14809	USSR	1 JUL	100.8	74.0	808	789		
1980 057A	COSMOS 1191	11871	USSR	2 JUL	716.7	67.9	35562	4738		
1980 057D		11888	USSR	2 JUL	722.0	67.9	35991	4572		
1980 057E		13999	USSR	2 JUL	708.6	65.6	37648	2254		
1980 058A	COSMOS 1192	11875	USSR	9 JUL	114.5	74.0	1472	1394		
1980 058B	COSMOS 1193	11876	USSR	9 JUL	114.7	74.0	1473	1412		
1980 058C	COSMOS 1194	11877	USSR	9 JUL	114.9	74.0	1472	1430		
1980 058D	COSMOS 1195	11878	USSR	9 JUL	115.1	74.0	1473	1448		
1980 058E	COSMOS 1196	11879	USSR	9 JUL	115.3	74.0	1473	1465		
1980 058F	COSMOS 1197	11880	USSR	9 JUL	115.5	74.0	1489	1469		
1980 058G	COSMOS 1198	11881	USSR	9 JUL	115.7	74.0	1506	1472		
1980 058H	COSMOS 1199	11882	USSR	9 JUL	116.0	74.0	1528	1471		
1980 058J		11883	USSR	9 JUL	117.6	74.0	1680	1467		
1980 060A	EKRAN 5	11890	USSR	14 JUL	1438.4	9.6	69711	1953		
1980 060F		14193	USSR	14 JUL	1417.3	9.0	35494	35340		
1980 063A	MOLNIYA 3-13	11896	USSR	18 JUL	717.7	63.7	39388	964		
1980 063D		11909	USSR	18 JUL	732.5	64.0	40157	920		
1980 069A	COSMOS 1206	11932	USSR	15 AUG	96.2	81.2	579	577		
1980 069B		11933	USSR	15 AUG	96.6	81.2	637	555		
1980 073A	METEOR 2-6	11962	USSR	9 SEP	102.2	81.2	889	834		
1980 073B		11963	USSR	9 SEP	102.2	81.2	910	818		
1980 074A	GOES 4	11964	US	9 SEP	1451.2	6.2	36216	35948		
1980 074C		11970	US	9 SEP	2254.5	2.0	67235	33916		
1980 081A	RADUGA 7	12003	USSR	5 OCT	1435.4	7.8	35795	35751		
1980 081F		12447	USSR	5 OCT	1440.4	8.0	35944	35798		
1980 085A	COSMOS 1217	12032	USSR	24 OCT	716.5	67.3	36391	3901		
1980 085D		12035	USSR	24 OCT	721.8	67.5	37096	3455		
1980 087A	FLTSATCOM 4	12046	US	31 OCT	1436.1	6.1	35809	35762		
1980 087B		12069	US	31 OCT	202.8	26.2	9841	267		
1980 089A	COSMOS 1220	12054	USSR	4 NOV	98.6	65.0	817	561		
1980 089B	- 089CG		USSR	4 NOV	SEE NOTE					32*
1980 091A	SBS 1	12065	US	15 NOV	1436.1	1.9	35798	35775		
1980 092A	MOLNIYA 1-48	12066	USSR	16 NOV	713.8	64.3	39437	720		
1980 092D		12070	USSR	16 NOV	733.5	64.4	40122	1007		
1980 093A	COSMOS 1222	12071	USSR	21 NOV	96.5	81.2	594	584		
1980 093B		12072	USSR	21 NOV	96.6	81.2	638	550		
1980 095A	COSMOS 1223	12078	USSR	27 NOV	718.1	67.7	36078	4291		
1980 095E		12086	USSR	27 NOV	723.4	67.5	36653	3978		
1980 097A	COSMOS 1225	12087	USSR	5 DEC	104.8	82.9	1024	943		
1980 097B		12088	USSR	5 DEC	104.6	82.9	1012	940		

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INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
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1981 002A	MOLNIYA 3-14	12133	USSR	9 JAN	717.6	64.0	38351	200.2
1981 002B		12134	USSR	9 JAN	732.2	64.3	38932	212.9
1981 003A	COSMOS 1238	12138	USSR	16 JAN	107.2	83.0	1796	1796
1981 003B		12139	USSR	16 JAN	106.3	83.0	1710	399
1981 006A	COSMOS 1241	12149	USSR	21 JAN	104.9	65.8	995	967.9
1981 006B		12150	USSR	21 JAN	104.6	65.8	1011	944
1981 006C		12151	USSR	21 JAN	104.9	65.8	992	984
1981 008A	COSMOS 1242	12154	USSR	27 JAN	96.8	81.2	617	594
1981 008B		12155	USSR	27 JAN	96.9	81.2	656	555
1981 009A	MOLNIYA 1-49	12156	USSR	30 JAN	717.4	63.9	38668	1655
1981 009D		12159	USSR	30 JAN	731.6	64.3	39375	1665
1981 012A	KIKU 3	12295	JAPAN	11 FEB	455.8	28.5	26240	2422
1981 012C		12787	JAPAN	11 FEB	547.8	28.4	31349	246
1981 013A	COSMOS 1244	12297	USSR	12 FEB	104.7	83.0	1005	955
1981 013B		12298	USSR	12 FEB	104.6	82.9	999	959
1981 016A	COSMOS 1247	12303	USSR	19 FEB	711.0	67.8	35940	4080
1981 016E		12311	USSR	19 FEB	703.5	67.6	35582	406
1981 016F		12984	USSR	19 FEB	710.5	67.9	35892	410
1981 016G		12985	USSR	19 FEB	710.1	65.4	37292	268.2
1981 016H		12992	USSR	19 FEB	706.6	65.8	38696	1100
1981 017A	ASTRO A	12307	JAPAN	21 FEB	94.6	31.3	514	48.2
1981 017B		12308	JAPAN	21 FEB	94.4	31.3	507	47.7
1981 018A	COMSTAR 4	12309	US	21 FEB	1436.0	3.9	35789	3578
1981 018B		12363	US	21 FEB	650.0	20.1	36328	62.2
1981 021A	COSMOS 1249	12319	USSR	5 MAR	103.9	65.0	990	89.9
1981 021C		12551	USSR	5 MAR	103.5	65.0	966	88.8
1981 022A	COSMOS 1250	12320	USSR	6 MAR	114.4	74.0	1469	138
1981 022B	COSMOS 1251	12321	USSR	6 MAR	114.6	74.0	1471	140.0
1981 022C	COSMOS 1252	12322	USSR	6 MAR	114.7	74.0	1470	141.1

OBJECTS IN ORBIT													
INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES			
1981 LAUNCHES (CONT.)													
1981 022D	COSMOS 1253	12323	USSR	6 MAR	115.6	74.0	1494	1466					
1981 022E	COSMOS 1254	12324	USSR	6 MAR	114.9	74.0	1470	1429					
1981 022F	COSMOS 1255	12325	USSR	6 MAR	115.0	74.0	1470	1443					
1981 022G	COSMOS 1256	12326	USSR	6 MAR	115.2	74.0	1474	1454					
1981 022H	COSMOS 1257	12327	USSR	6 MAR	115.4	74.0	1477	1465					
1981 022J		12328	USSR	6 MAR	117.6	74.0	1694	1454					
1981 025A		12339	US	16 MAR	ELEMENTS NOT AVAILABLE								
1981 025C		12371	US	16 MAR	ELEMENTS NOT AVAILABLE								
1981 027A	RADUGA 8	12351	USSR	18 MAR	1434.8	7.8	36110	35409					
1981 027F		14194	USSR	18 MAR	1474.5	8.0	36618	36450					
1981 028B	- 028BW		USSR	20 MAR	SEE NOTE					33#			
1981 030A	MOLNIYA 3-15	12368	USSR	24 MAR	717.7	64.8	39098	1251					
1981 030D		12383	USSR	24 MAR	732.7	65.0	39513	1574					
1981 031A	COSMOS 1261	12376	USSR	31 MAR	717.4	67.9	36538	3798					
1981 031D		12384	USSR	31 MAR	707.5	67.8	35937	3909					
1981 031E		12892	USSR	31 MAR	719.5	67.4	36594	3845					
1981 031F		12893	USSR	31 MAR	716.1	64.2	37401	2868					
1981 031G		12894	USSR	31 MAR	718.4	65.3	37210	3174					
1981 033A	COSMOS 1263	12388	USSR	9 APR	107.1	83.0	1792	388					
1981 033B		12389	USSR	9 APR	105.7	83.0	1672	378					
1981 036E		12427	USSR	16 APR	102.9	99.0	1023	765					
1981 037A	COSMOS 1266	12409	USSR	21 APR	103.6	64.8	937	918					
1981 037D		12435	USSR	21 APR	103.4	64.8	922	911					
1981 038A		12418	US	24 APR	ELEMENTS NOT AVAILABLE								
1981 038B		12446	US	24 APR	ELEMENTS NOT AVAILABLE								
1981 041A	COSMOS 1269	12442	USSR	7 MAY	100.7	74.1	801	785					
1981 041B		12443	USSR	7 MAY	100.6	74.0	792	785					
1981 041C		13498	USSR	7 MAY	100.5	74.0	793	772					
1981 041D		14346	USSR	7 MAY	100.1	74.1	775	754					
1981 043A	METEOR 2-7	12456	USSR	14 MAY	102.2	81.3	887	841					
1981 043B		12457	USSR	14 MAY	102.4	81.3	918	825					
1981 043C		15769	USSR	14 MAY	102.4	81.3	919	825					
1981 044A	NNSS 30480	12458	US	15 MAY	ELEMENTS NOT AVAILABLE								
1981 046A	COSMOS 1271	12464	USSR	19 MAY	96.8	81.2	613	597					
1981 046B		12465	USSR	19 MAY	97.1	81.2	657	577					
1981 049A	GOES 5	12472	US	22 MAY	1436.4	3.2	35869	35719					
1981 050A	INTELSAT 5 F-1	12474	ITSO	23 MAY	1436.2	1.8	35806	35771					
1981 050B		12497	US	23 MAY	229.0	23.9	11702	339					
1981 053A	COSMOS 1275	12504	USSR	4 JUN	104.7	83.0	1005	956					
1981 053B	- 053MR		USSR	4 JUN	SEE NOTE					34#			
1981 054A	MOLNIYA 3-16	12512	USSR	9 JUN	717.9	64.1	38530	1828					
1981 054E		12519	USSR	9 JUN	733.6	64.3	39133	1998					
1981 057A	METEOSAT 2	12544	ESA	19 JUN	1436.1	3.1	35800	35771					
1981 057B	APPLE	12545	INDIA	19 JUN	1447.7	0.8	36478	35548					
1981 057C		12546	ESA	19 JUN	547.2	10.4	31319	247					
1981 057D		12562	ESA	19 JUN	342.6	10.6	19410	270					
1981 057E		14125	ESA	19 JUN	301.4	10.3	16838	183					
1981 058A	COSMOS 1278	12547	USSR	19 JUN	718.1	67.2	36149	4220					
1981 058D		12561	USSR	19 JUN	723.9	67.5	36792	3866					
1981 058E		17256	USSR	19 JUN	717.9	67.1	36150	4212					

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OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1981 LAUNCHES (CONT.)										
1981 059A	NOAA 7	12553	US	23 JUN	101.8	99.1	851	833		
1981 059B		12559	US	23 JUN	101.3	99.0	823	816		
1981 059C		12560	US	23 JUN	101.3	99.0	822	816		
1981 060A	MOLNIYA 1-50	12566	USSR	24 JUN	717.6	64.6	39637	707		
1981 060D		12563	USSR	24 JUN	732.0	64.9	40131	923		
1981 061A	SKRAN 7	12564	USSR	25 JUN	1436.0	7.5	35794	35776		
1981 061F		12851	USSR	25 JUN	1425.7	7.4	35603	35562		
1981 065A	METEOR 1-31	12585	USSR	10 JUL	97.1	97.8	642	594		
1981 065B		12586	USSR	10 JUL	97.2	97.8	641	606		
1981 065D		19236	USSR	10 JUL	91.8	97.7	364	357		
1981 069A	RADUGA 9	12618	USSR	30 JUL	1436.8	7.2	35816	35783		
1981 069F		12850	USSR	30 JUL	1473.9	7.6	36651	36396		
1981 070A	DE 1	12624	US	3 AUG	410.1	89.0	23263	552		
1981 070E		12679	US	3 AUG	411.6	89.1	23364	535		
1981 070J		14620	US	3 AUG	402.3	89.2	22852	498		
1981 070K		14621	US	3 AUG	401.3	89.2	22807	479		
1981 070L		19478	US	3 AUG	407.1	89.1	23115	516		
1981 071A	COSMOS 1285	12627	USSR	4 AUG	727.0	68.0	37040	3766		
1981 071D		12630	USSR	4 AUG	722.8	68.0	36741	3861		
1981 071E		12993	USSR	4 AUG	727.8	68.0	37021	3825		
1981 071F		13961	USSR	4 AUG	726.8	64.2	38048	2748		
1981 073A	FLTSATCOM 5	12635	US	6 AUG	1460.0	5.9	36284	36222		
1981 074A	COSMOS 1287	12636	USSR	6 AUG	115.7	74.0	1511	1462		
1981 074B	COSMOS 1288	12637	USSR	6 AUG	115.5	74.0	1491	1462		
1981 074C	COSMOS 1289	12638	USSR	6 AUG	114.7	74.0	1462	1424		
1981 074D	COSMOS 1290	12639	USSR	6 AUG	114.9	74.0	1463	1439		
1981 074E	COSMOS 1291	12640	USSR	6 AUG	115.1	74.0	1462	1456		
1981 074F	COSMOS 1292	12642	USSR	6 AUG	115.3	74.0	1475	1461		
1981 074G	COSMOS 1293	12643	USSR	6 AUG	114.6	74.0	1463	1407		
1981 074H	COSMOS 1294	12644	USSR	6 AUG	114.4	74.0	1463	1390		
1981 074J		12645	USSR	6 AUG	117.4	74.0	1669	1462		
1981 075A	INTERCOSMOS	12646	USSR	7 AUG	101.7	81.2	884	791		
1981 075B		12677	USSR	7 AUG	101.8	81.2	892	794		
1981 076A	GMS 2	12810	JAPAN	10 AUG	1446.5	5.6	36023	35957		
1981 076C		12681	USSR	10 AUG	193.3	28.5	9224	167		
1981 077A	COSMOS 1295	12682	USSR	12 AUG	104.6	82.9	1010	944		
1981 077B		12793	USSR	12 AUG	104.5	82.9	997	944		
1981 081A	COSMOS 1299	12795	USSR	24 AUG	103.9	65.1	978	911		
1981 082A	COSMOS 1300	12786	USSR	24 AUG	97.2	82.5	637	610		
1981 082B		12791	USSR	24 AUG	97.4	82.5	649	621		
1981 084A	COSMOS 1302	12792	USSR	28 AUG	100.6	74.0	801	774		
1981 084B		12793	USSR	28 AUG	100.5	74.0	791	776		
1981 084C		14810	USSR	28 AUG	100.4	74.0	780	776		
1981 084D	COSMOS 1304	12803	USSR	4 SEP	100.9	74.0	822	780		
1981 087A		12804	USSR	4 SEP	103.8	82.9	974	904		
1981 087B		12818	USSR	11 SEP	263.7	63.4	13412	1072		
1981 088A	COSMOS 1305	12827	USSR	11 SEP	262.4	63.3	13356	1038		
1981 088F		14131	USSR	11 SEP	249.0	63.2	12618	846		
1981 088G		12935	USSR	18 SEP	104.7	82.9	1000	961		

ORIGINAL PAGE IS
OF POOR QUALITY

INTER- NATIONAL DESIGNATION	NAME	OBJECTS IN ORBIT				PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
		CATALOG NUMBER	SOURCE	LAUNCH							
1981 LAUNCHES (CONT.)											
1981 091B		12936	USSR	18 SEP		104.6	82.9	993	961		
1981 094A	OREOL 3	12848	USSR	21 SEP		107.3	82.5	1806	397		
1981 094B		12849	USSR	21 SEP		108.6	82.5	1920	399		
1981 096A	SBS 2	12855	US	24 SEP		1436.2	2.0	35801	35774		
1981 098A	COSMOS 1312	12879	USSR	30 SEP		115.9	82.6	1499	1489		
1981 098B		12880	USSR	30 SEP		115.8	82.6	1498	1486		
1981 100A	SME	12887	US	6 OCT		93.1	97.6	428	427		
1981 100C		12889	US	6 OCT		118.9	99.9	2715	549		
1981 102A	RADUGA 10	12897	USSR	9 OCT		1436.5	7.2	35822	35765		
1981 102F		14195	USSR	9 OCT		1436.9	7.2	35855	35747		
1981 103A	COSMOS 1315	12903	USSR	13 OCT		97.0	81.2	631	597		
1981 103B		12904	USSR	13 OCT		97.2	81.2	657	593		
1981 105A	MOLNIYA 3-17	12915	USSR	17 OCT		713.5	64.4	39002	1142		
1981 105E		12920	USSR	17 OCT		733.2	64.6	39508	1606		
1981 106A	VENERA 13	12927	USSR	30 OCT		HELIOCENTRIC ORBIT ELEMENTS NOT AVAILABLE					
1981 107A		12930	US	31 OCT		ELEMENTS NOT AVAILABLE					
1981 107C		12932	US	31 OCT		ELEMENTS NOT AVAILABLE					
1981 108A	COSMOS 1317	12933	USSR	31 OCT		719.2	66.9	36179	4243		
1981 108D		12940	USSR	31 OCT		723.3	67.1	36737	3888		
1981 108E		14734	USSR	31 OCT		713.6	65.3	36709	3438		
1981 108F		14735	USSR	31 OCT		714.7	65.1	36478	3725		
1981 108G		14736	USSR	31 OCT		719.4	62.9	38860	1576		
1981 110A	VENERA 14	12938	USSR	4 NOV		HELIOCENTRIC ORBIT					
1981 113A	MOLNIYA 1-51	12959	USSR	17 NOV		717.9	64.0	38816	1546		
1981 113D		12986	USSR	17 NOV		698.9	64.3	37767	1650		
1981 114A	RCA SATCOM IIIR	12967	US	20 NOV		1436.1	0.0	35801	35770		
1981 115A	BHASKARA 2	12968	INDIA	20 NOV		93.7	50.7	459	447		
1981 116A	COSMOS 1320	12975	USSR	28 NOV		117.2	74.0	1633	1478		
1981 116B	COSMOS 1321	12976	USSR	28 NOV		117.2	74.0	1630	1479		
1981 116C	COSMOS 1322	12977	USSR	28 NOV		117.2	74.0	1627	1478		
1981 116D	COSMOS 1323	12978	USSR	28 NOV		117.1	74.0	1623	1479		
1981 116E	COSMOS 1324	12979	USSR	28 NOV		117.1	74.0	1618	1479		
1981 116F	COSMOS 1325	12980	USSR	28 NOV		117.0	74.0	1615	1478		
1981 116G	COSMOS 1326	12981	USSR	28 NOV		117.0	74.0	1610	1478		
1981 116H	COSMOS 1327	12982	USSR	28 NOV		116.9	74.0	1602	1478		
1981 116J		12983	USSR	28 NOV		117.5	74.0	1658	1481		
1981 117A	COSMOS 1328	12987	USSR	3 DEC		97.3	82.5	641	612		
1981 117B		12988	USSR	3 DEC		97.5	82.5	652	620		
1981 119A	INTELSAT 5 F-3	12994	ITSO	15 DEC		1436.2	0.9	35808	35769		
1981 119B		13007	US	15 DEC		233.3	23.6	12042	309		
1981 120A	RADIO 3	12997	USSR	17 DEC		118.4	83.0	1654	1563		
1981 120B	RADIO 8	12998	USSR	17 DEC		119.6	83.0	1680	1649		
1981 120C	RADIO 5	12999	USSR	17 DEC		119.4	82.9	1665	1645		
1981 120D	RADIO 4	13000	USSR	17 DEC		119.3	83.0	1664	1632		
1981 120E	RADIO 7	13001	USSR	17 DEC		119.1	83.0	1657	1620		
1981 120F	RADIO 6	13002	USSR	17 DEC		118.6	83.0	1657	1578		
1981 120G		13003	USSR	17 DEC		120.8	83.0	1782	1650		
1981 122A	MARECS A	13010	ESA	20 DEC		1436.0	3.8	35800	35774		
1981 122B	CAT 4	13011	ESA	20 DEC		574.1	10.9	32764	240		
1981 123A	MOLNIYA 1-52	13012	USSR	23 DEC		717.9	64.0	39052	1309		

ORIGINAL PAGE IS
OF POOR QUALITY

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ. (MHz)	NOTES
1981 LAUNCHES (CONT.)										
1981 123D		13016	USSR	23 DEC	695.2	64.2	37778	1458		
1982 LAUNCHES										
1982 001A	COSMOS 1331	13027	USSR	7 JAN	100.5	74.0	799	761		
1982 001B		13028	USSR	7 JAN	100.4	74.0	794	763		
1982 001C		13029	USSR	7 JAN	100.4	74.0	790	766		
1982 001D		13030	USSR	7 JAN	100.0	74.0	777	738		
1982 003A	COSMOS 1333	13033	USSR	14 JAN	104.9	82.9	1011	965		
1982 003B		13034	USSR	14 JAN	104.7	82.9	1004	960		
1982 004A	RCA SATCOM IV	13035	US	16 JAN	1436.2	0.0	35798	35778		
1982 006C		13103	US	21 JAN	ELEMENTS NOT AVAILABLE					
1982 006D		13104	US	21 JAN	ELEMENTS NOT AVAILABLE					
1982 006E		13105	US	21 JAN	ELEMENTS NOT AVAILABLE					
1982 006F		13162	US	21 JAN	ELEMENTS NOT AVAILABLE					
1982 009A	EKRAN 8	13056	USSR	5 FEB	1441.0	7.0	35979	35787		
1982 009D		13059	USSR	5 FEB	538.2	48.3	29461	1614		
1982 009F		14117	USSR	5 FEB	1425.9	6.8	35780	35394		
1982 012A	COSMOS 1339	13065	USSR	17 FEB	104.7	82.9	1012	949		
1982 012B		13066	USSR	17 FEB	104.6	82.9	1006	942		
1982 013A	COSMOS 1340	13067	USSR	19 FEB	97.0	81.2	625	607		
1982 013B		13068	USSR	19 FEB	97.1	81.2	644	593		
1982 014A	WESTAR 4	13069	US	26 FEB	1436.1	0.0	35796	35778		
1982 015A	MOLNIYA 1-53	13070	USSR	26 FEB	717.6	63.9	39351	994		
1982 015D		13075	USSR	26 FEB	730.9	64.0	39811	1187		
1982 016A	COSMOS 1341	13080	USSR	3 MAR	717.7	67.7	36388	3962		
1982 016D		13090	USSR	3 MAR	708.9	67.6	36042	3875		
1982 017A	INTELSAT 5 F-4	13083	ITSD	5 MAR	1436.1	0.9	35800	35774		
1982 019A		13086	US	6 MAR	ELEMENTS NOT AVAILABLE					
1982 019B		13089	US	6 MAR	ELEMENTS NOT AVAILABLE					
1982 020A	GORIZONT 5	13092	USSR	15 MAR	1461.5	6.8	36435	36130		
1982 020F		13899	USSR	15 MAR	1459.9	6.9	36381	36122		
1982 023A	MOLNIYA 3-18	13107	USSR	24 MAR	717.7	64.8	39230	1118		
1982 023D		13112	USSR	24 MAR	732.3	65.0	39729	1337		
1982 024A	COSMOS 1344	13110	USSR	24 MAR	104.8	82.9	1008	963		
1982 024B		13111	USSR	24 MAR	104.7	82.9	1012	948		
1982 024B		13113	USSR	25 MAR	104.7	82.5	957	934		
1982 025A	METEOR 2	13114	USSR	25 MAR	104.0	82.5	956	935		
1982 025B		13120	USSR	31 MAR	97.0	81.2	633	596		
1982 027A	COSMOS 1346	13121	USSR	31 MAR	97.2	81.2	655	590		
1982 027B		13129	USSR	7 APR	719.1	66.2	36379	4039		
1982 029A	COSMOS 1348	13164	USSR	7 APR	705.4	66.5	36051	3688		
1982 029D		13127	USSR	8 APR	104.8	82.9	1009	962		
1982 030A	COSMOS 1349	13128	USSR	8 APR	104.7	82.9	1002	957		
1982 030B		13129	INDIA	10 APR	1434.2	0.1	35936	35562		
1982 031A	INSAT-1A	13138	USSR	19 APR	92.4	51.6	395	393		
1982 033A	SALVUT 7	13148	USSR	28 APR	100.8	74.0	802	786		
1982 037A	COSMOS 1354	13149	USSR	28 APR	100.6	74.0	798	776		
1982 037B		14811	USSR	28 APR	101.0	74.0	826	789		
1982 037C		14811	USSR	28 APR	101.0	74.0	826	789		
1982 039A	COSMOS 1356	13153	USSR	5 MAY	97.2	81.2	642	610		

9X*

INTER- NATIONAL DESIGNATION	NAME	OBJECTS IN ORBIT				PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
		CATALOG NUMBER	SOURCE	LAUNCH							
1982 LAUNCHES (CONT.)											
1982 039B		13154	USSR	5 MAY	97.5	81.2	680	595			
1982 040A	COSMOS 1357	13160	USSR	6 MAY	114.6	74.0	1476	1399			
1982 040B	COSMOS 1358	13161	USSR	6 MAY	114.8	74.0	1479	1413			
1982 040C	COSMOS 1359	13162	USSR	6 MAY	115.0	74.0	1478	1430			
1982 040D	COSMOS 1360	13163	USSR	6 MAY	115.2	74.0	1480	1444			
1982 040E	COSMOS 1361	13164	USSR	6 MAY	115.3	74.0	1482	1459			
1982 040F	COSMOS 1362	13165	USSR	6 MAY	115.5	74.0	1493	1465			
1982 040G	COSMOS 1363	13166	USSR	6 MAY	115.7	74.0	1503	1472			
1982 040H	COSMOS 1364	13167	USSR	6 MAY	115.9	74.0	1522	1471			
1982 040J		13168	USSR	6 MAY	117.7	74.0	1686	1470			
1982 041C		13172	US	11 MAY	ELEMENTS NOT AVAILABLE						
1982 043A	COSMOS 1365	13175	USSR	14 MAY	103.6	65.1	978	882			
1982 043D		13594	USSR	14 MAY	103.4	65.1	964	870			
1982 044A	COSMOS 1366	13177	USSR	17 MAY	1436.4	6.4	35820	35763			
1982 044F		14114	USSR	17 MAY	1436.1	6.4	35828	35742			
1982 045A	COSMOS 1367	13205	USSR	20 MAY	717.3	65.3	36525	3805			
1982 045D		13215	USSR	20 MAY	704.1	65.5	36303	3373			
1982 050A	MOLNIYA 1-54	13237	USSR	28 MAY	717.7	64.8	38877	1474			
1982 050E		13253	USSR	28 MAY	732.2	65.0	39381	1680			
1982 051A	COSMOS 1371	13241	USSR	1 JUN	100.8	74.0	805	784			
1982 051B		13242	USSR	1 JUN	100.6	74.0	806	765			
1982 051C		14398	USSR	1 JUN	100.7	74.1	795	789			
1982 051D		18502	USSR	1 JUN	100.7	74.1	794	792			
1982 051E		18509	USSR	1 JUN	100.7	74.0	802	782			
1982 051F		18510	USSR	1 JUN	100.8	74.0	809	780			
1982 051G		19102	USSR	1 JUN	100.7	74.1	804	777			
1982 052A	COSMOS 1372	13243	USSR	1 JUN	103.9	64.9	955	929			
1982 052D		13416	USSR	1 JUN	103.6	64.9	936	920			
1982 055A	COSMOS 1375	13259	USSR	6 JUN	105.0	65.8	1009	981			
1982 055B - 0553L			USSR	6 JUN	SEE NOTE	37*					37*
1982 058A	WESTAR 5	13269	US	9 JUN	1436.1	0.0	35801	35777			
1982 059A	COSMOS 1378	13271	USSR	10 JUN	97.3	82.5	643	613			
1982 059B		13272	USSR	10 JUN	97.5	82.5	652	621			
1982 064A	COSMOS 1382	13295	USSR	25 JUN	718.5	67.6	36492	3898			
1982 064D		13298	USSR	25 JUN	708.4	67.7	36295	3597			
1982 066A	COSMOS 1383	13301	USSR	29 JUN	105.2	82.9	1025	983			
1982 066B		13302	USSR	29 JUN	105.1	82.9	1027	970			
1982 069A	COSMOS 1386	13353	USSR	7 JUL	104.6	83.0	1006	948			
1982 069B		13354	USSR	7 JUL	104.5	83.0	1008	931			
1982 072A	LANDSAT 4	13367	US	16 JUL	98.7	98.1	701	697			
1982 073A	COSMOS 1388	13375	USSR	21 JUL	114.5	74.0	1472	1391			
1982 073B	COSMOS 1389	13376	USSR	21 JUL	114.7	74.0	1473	1407			
1982 073C	COSMOS 1390	13377	USSR	21 JUL	114.9	74.0	1473	1424			
1982 073D	COSMOS 1391	13378	USSR	21 JUL	115.0	74.0	1473	1440			
1982 073E	COSMOS 1392	13379	USSR	21 JUL	115.2	74.0	1473	1457			
1982 073F	COSMOS 1393	13390	USSR	21 JUL	115.4	74.0	1481	1468			
1982 073G	COSMOS 1394	13381	USSR	21 JUL	115.6	74.0	1493	1472			
1982 073H	COSMOS 1395	13382	USSR	21 JUL	115.8	74.0	1513	1472			
1982 073J		13386	USSR	21 JUL	117.9	74.0	1710	1462			
1982 074A	MOLNIYA 1-55	13383	USSR	21 JUL	717.7	64.8	39164	1185			

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLIN- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1982 LAUNCHES (CONT.)										
1982 074D		13390	USSR	21 JUL	698.6	64.8	38234	1169		
1982 079A	COSMOS 1400	13402	USSR	5 AUG	97.0	81.2	622	604		
1982 079B		13403	USSR	5 AUG	97.2	81.2	665	587		
1982 082A	ANIK D-1	13431	CANADA	26 AUG	1436.1	0.0	35796	35778		
1982 083A	MOLNIYA 3-19	13432	USSR	27 AUG	717.0	64.2	39059	1255		
1982 083E		13446	USSR	27 AUG	733.1	64.3	39857	1249		
1982 087A	ETS 3	13492	JAPAN	3 SEP	107.2	44.6	1228	966		
1982 087B		13493	JAPAN	3 SEP	105.1	44.6	1009	922		
1982 087C		13510	JAPAN	3 SEP	107.2	44.6	1236	953		
1982 087D		14569	JAPAN	3 SEP	106.3	44.9	1147	963		
1982 092A	COSMOS 1409	13552	USSR	16 SEP	97.2	82.6	641	611		
1982 092B		13553	USSR	16 SEP	97.5	82.6	654	621		
1982 093A	EKRAN 9	13554	USSR	16 SEP	1450.2	6.1	37048	35077		
1982 093F		14115	USSR	16 SEP	1422.2	6.4	35536	35492		
1982 095A	COSMOS 1409	13585	USSR	22 SEP	718.5	64.6	36722	3669		
1982 095D		13591	USSR	22 SEP	707.2	65.2	36608	3225		
1982 096A	COSMOS 1410	13599	USSR	24 SEP	115.9	82.6	1500	1489		
1982 096B		13599	USSR	24 SEP	115.8	82.6	1498	1487		
1982 097A	INTELSAT 5F 5	13595	ITSO	28 SEP	1436.1	0.3	35799	35777		
1982 097B		13599	US	29 SEP	149.9	24.4	5721	213		
1982 099A	COSMOS 1412	13600	USSR	2 OCT	103.9	64.8	995	890		
1982 099E		13603	USSR	2 OCT	103.6	64.8	966	888		
1982 100A	COSMOS 1413	13603	USSR	12 OCT	673.3	64.7	19073	19063		
1982 100D	COSMOS 1414	13606	USSR	12 OCT	675.7	64.7	19202	19055		
1982 100E	COSMOS 1415	13607	USSR	12 OCT	673.5	64.7	19083	19062		
1982 100F		13608	USSR	12 OCT	312.6	52.1	17464	292		
1982 100G		13609	USSR	12 OCT	321.6	52.0	17996	342		
1982 100H		13610	USSR	12 OCT	672.9	64.7	19075	19040		
1982 102A		13618	USSR	19 OCT	104.7	83.0	1006	956		
1982 102B	GORIZONT 6	13624	USSR	19 OCT	1434.7	6.0	997	954		
1982 103A		13630	USSR	20 OCT	1434.4	6.0	35788	35730		
1982 103C		13631	US	20 OCT	1436.2	0.0	35796	35689		
1982 105A	RCA SATCOM-V	13636	US	28 OCT	1436.2	4.5	55546	35780		
1982 106A		13637	US	30 OCT	1436.1	0.1	35728	16028		
1982 106B		13643	US	30 OCT	1449.1	4.6	36210	35783		
1982 106D		13648	US	30 OCT	1449.1	4.6	803	772		
1982 109A	COSMOS 1420	13649	USSR	11 NOV	100.6	74.0	797	769		
1982 109B		13649	USSR	11 NOV	100.5	74.0	616	601		
1982 109C		14227	USSR	11 NOV	96.9	74.0	799	777		
1982 109D		15528	USSR	11 NOV	100.6	74.0	35802	35772		
1982 110B	SBS 3	13651	US	12 NOV	1436.1	0.0	35793	35778		
1982 110C	ANIK C-3	13652	CANADA	12 NOV	1436.0	2.8	36410	286		
1982 110D		13658	US	11 NOV	644.9	22.9	36372	282		
1982 110E		13666	US	11 NOV	644.1	22.7	36690	36354		
1982 113A	RADUGA 11	13669	USSR	26 NOV	1473.9	5.4	36648	36475		
1982 113F		13954	USSR	26 NOV	1475.9	5.5				
1982 115B	115AJ	13713	USSR	8 DEC	SEE NOTE	36*	884	805		
1982 116A	METEOR 2-9	13719	USSR	14 DEC	101.8	81.2	898	796		
1982 116C		13720	USSR	14 DEC	101.8	81.2	884	804		

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1982 LAUNCHES (CONT.)										
1982 116D		17755	USSR	14 DEC	101.9	81.3	897	797		
1982 118A		13736	US	21 DEC	101.1	98.7	817	804		
1982 118B		13737	US	21 DEC	99.2	98.6	720	716		
1982 118C		13738	US	21 DEC	100.0	98.6	762	756		
1982 118D		13773	US	21 DEC	98.9	98.6	707	704		
1982 118E		13774	US	21 DEC	99.2	98.6	725	716		
1983 LAUNCHES										
1983 001A	COSMOS 1428	13757	USSR	12 JAN	104.6	82.9	1001	949		
1983 001B		13758	USSR	12 JAN	104.5	82.9	992	950		
1983 001C		14568	USSR	12 JAN	103.9	82.9	964	919		
1983 002A	COSMOS 1429	13761	USSR	19 JAN	115.8	74.0	1516	1464		
1983 002B	COSMOS 1430	13762	USSR	19 JAN	115.6	74.0	1496	1465		
1983 002C	COSMOS 1431	13763	USSR	19 JAN	115.4	74.0	1481	1463		
1983 002D	COSMOS 1432	13764	USSR	19 JAN	115.2	74.0	1466	1461		
1983 002E	COSMOS 1433	13765	USSR	19 JAN	115.0	74.0	1465	1444		
1983 002F	COSMOS 1434	13766	USSR	19 JAN	114.8	74.0	1465	1428		
1983 002G	COSMOS 1435	13767	USSR	19 JAN	114.6	74.0	1466	1412		
1983 002H	COSMOS 1436	13768	USSR	19 JAN	114.5	74.0	1465	1397		
1983 002J		13769	USSR	19 JAN	117.9	74.0	1693	1476		
1983 003A	COSMOS 1437	13770	USSR	20 JAN	97.1	81.2	634	604		
1983 003B		13771	USSR	20 JAN	97.2	81.2	660	588		
1983 004A	IRAS	13777	US	26 JAN	102.9	99.0	904	886		
1983 004B		13778	US	26 JAN	102.3	100.1	884	852		
1983 004C		13783	US	26 JAN	102.9	99.0	902	886		
1983 006A	CS-2A	13782	JAPAN	4 FEB	1436.2	2.5	35790	35784		
1983 006B		13786	JAPAN	4 FEB	195.3	28.5	9308	236		
1983 008A		13791	US	9 FEB	ELEMENTS NOT AVAILABLE					
1983 008B		13792	US	9 FEB	ELEMENTS NOT AVAILABLE					
1983 008C		13834	US	9 FEB	ELEMENTS NOT AVAILABLE					
1983 008D		13835	US	9 FEB	ELEMENTS NOT AVAILABLE					
1983 008E		13844	US	9 FEB	ELEMENTS NOT AVAILABLE					
1983 008F		13845	US	9 FEB	ELEMENTS NOT AVAILABLE					
1983 008G		13849	US	9 FEB	ELEMENTS NOT AVAILABLE					
1983 008H		13874	US	9 FEB	ELEMENTS NOT AVAILABLE					
1983 010A	COSMOS 1441	13818	USSR	16 FEB	96.9	81.1	615	606		
1983 010B		13819	USSR	16 FEB	97.1	81.1	658	576		
1983 015A	MOLNIYA 3-20	13875	USSR	11 MAR	717.3	64.0	38988	1344		
1983 015E		13882	USSR	11 MAR	731.9	63.9	39540	1510		
1983 016A	EKRAN 10	13878	USSR	12 MAR	1515.4	6.8	37484	37164		
1983 016F		14086	USSR	12 MAR	1424.4	6.4	35603	35512		
1983 019A	MOLNIYA 1-56	13890	USSR	16 MAR	720.6	63.7	38855	1638		
1983 019D		13897	USSR	16 MAR	732.6	63.8	39256	1828		
1983 020A	ASTRON	13901	USSR	23 MAR	5915.8	79.8	178817	25128		
1983 020D		20413	USSR	23 MAR	6047.1	42.8	200734	6407		
1983 021A	COSMOS 1447	13916	USSR	24 MAR	104.7	82.9	1010	953		
1983 021B		13917	USSR	24 MAR	104.6	82.9	997	956		
1983 022A	NOAA 8	13923	US	28 MAR	101.1	98.5	822	797		
1983 022B		13924	US	28 MAR	99.3	98.6	724	722		

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OBJECTS IN ORBIT										
INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1983 LAUNCHES (CONT.)										
1983 022C		14477	US	28 MAR	98.9	98.6	708	704		
1983 023A	COSMOS 1448	13949	USSR	30 MAR	104.7	83.0	1002	955		
1983 023B		13950	USSR	30 MAR	104.6	83.0	1005	947		
1983 025A	MOLNIYA 1-57	13964	USSR	2 APR	716.8	64.1	39156	1148		
1983 025D		13967	USSR	2 APR	699.3	64.3	38078	1358		
1983 026B	TDPS 1	13969	US	4 APR	1435.9	4.2	35813	35753		
1983 026C		13970	US	4 APR	1089.7	2.6	35178	22219		
1983 026D		13971	US	4 APR	566.7	26.1	32340	274		
1983 027A	COSMOS 1450	13972	USSR	6 APR	90.9	65.8	326	314		
1983 028A	RADUGA 12	13974	USSR	8 APR	1435.9	5.2	35794	35772		
1983 028F		13983	USSR	8 APR	1439.3	5.2	35966	35733		
1983 030A	RCA SATCOM VI	13984	US	11 APR	1436.1	0.0	35796	35777		
1983 030B		13985	US	11 APR	120.9	25.4	3140	300		
1983 031A	COSMOS 1452	13991	USSR	12 APR	100.7	74.0	803	778		
1983 031B		13992	USSR	12 APR	100.6	74.1	789	781		
1983 031D		14812	USSR	12 APR	101.0	74.1	823	792		
1983 033A	ROHINI 3	14002	INDIA	17 APR	90.6	46.6	346	260		
1983 037A	COSMOS 1455	14032	USSR	23 APR	97.3	82.5	642	615		
1983 037B		14033	USSR	23 APR	97.5	82.5	653	624		
1983 038A	COSMOS 1456	14034	USSR	25 APR	718.4	66.8	36897	3488		
1983 038E		14041	USSR	25 APR	707.3	66.7	36466	3369		
1983 038H		14297	USSR	25 APR	719.2	66.9	36921	3503		
1983 038J		14301	USSR	25 APR	789.5	67.0	43591	246		
1983 038K		14306	USSR	25 APR	720.6	64.3	39697	795		
1983 041A	GOES 6	14050	US	28 APR	1436.2	2.0	35806	35775		
1983 041B		14051	US	28 APR	117.0	25.3	2684	407		
1983 041C		14069	US	28 APR	1703.3	1.2	54325	27405		
1983 041D		14196	US	28 APR	201.1	23.8	9836	148		
1983 042A	COSMOS 1459	14057	USSR	6 MAY	104.6	83.0	1014	939		
1983 042B		14059	USSR	6 MAY	104.5	83.0	1005	937		
1983 044A	COSMOS 1461	14064	USSR	7 MAY	99.0	65.0	861	561		
1983 044B	- 044FQ		USSR	7 MAY	SEE NOTE					39*
1983 046A	COSMOS 1463	14075	USSR	19 MAY	98.6	82.9	1092	286		
1983 047A	INTELSAT 5 F-6	14077	ITSO	19 MAY	1436.1	0.0	35805	35770		
1983 048A	COSMOS 1464	14084	USSR	24 MAY	104.8	82.9	1006	962		
1983 048B		14085	USSR	24 MAY	104.7	82.9	1000	957		
1983 051B		14096	US	26 MAY	119.1	72.3	2523	755		
1983 053A	VENERA 15	14104	USSR	2 JUN	HELIOCENTRIC ORBIT					
1983 054A	VENERA 16	14107	USSR	7 JUN	HELIOCENTRIC ORBIT					
1983 056A		14112	US	9 JUN	ELEMENTS NOT AVAILABLE					
1983 056B		14113	US	9 JUN	ELEMENTS NOT AVAILABLE					
1983 056C		14143	US	9 JUN	ELEMENTS NOT AVAILABLE					
1983 056D		14144	US	9 JUN	ELEMENTS NOT AVAILABLE					
1983 056E		14145	US	9 JUN	ELEMENTS NOT AVAILABLE					
1983 056F		14146	US	9 JUN	ELEMENTS NOT AVAILABLE					
1983 056G		14180	US	9 JUN	ELEMENTS NOT AVAILABLE					
1983 056H		14181	US	9 JUN	ELEMENTS NOT AVAILABLE					
1983 058A	ECS 1	14128	ESA	16 JUN	1436.1	0.6	36112	35460		
1983 058B	OSCAR 10	14129	FRG	16 JUN	699.5	25.9	35347	4102		
1983 058C		14130	ESA	16 JUN	420.3	8.7	24158	255		

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCL- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1983 LAUNCHES (CONT.)										
1983 058E		17302	ESA	16 JAN	148.5	6.3	5672	153		
1983 058F		17331	ESA	16 JUN	271.9	7.3	14698	349		
1983 059B	ANIK C2	14133	CANADA	18 JUN	1436.0	0.0	35791	35782		35*
1983 059C	PALAPA B1	14134	INDNSA	18 JUN	1436.2	0.1	35794	35781		35*
1983 059D		14135	US	18 JUN	618.0	23.4	34998	313		
1983 059E		14136	US	18 JUN	662.1	25.6	37246	324		
1983 060C		14139	US	20 JUN	ELEMENTS NOT AVAILABLE					
1983 061A	COSMOS 1470	14147	USSR	22 JUN	97.4	82.5	648	617		
1983 061B		14148	USSR	22 JUN	97.5	82.5	657	623		
1983 063A		14154	US	27 JUN	100.8	82.0	827	760		
1983 063B		14155	US	27 JUN	100.7	82.0	825	757		
1983 063C		14222	US	27 JUN	100.0	82.4	778	739		
1983 063D		14223	US	27 JUN	101.1	81.6	855	761		
1983 065A	GALAXY 1	14158	US	28 JUN	1436.1	0.0	35793	35782		
1983 065C		14168	US	28 JUN	370.8	23.1	21222	215		
1983 066A	GORIZONT 7	14160	USSR	30 JUN	1464.3	4.8	36379	36293		
1983 066E		14167	USSR	30 JUN	254.5	46.6	13629	218		
1983 066F		15141	USSR	30 JUN	1475.2	5.0	36600	36495		
1983 067A	PROGNOZ 9	14163	USSR	1 JUL	CURRENT ELEMENTS NOT MAINTAINED					
1983 069A	COSMOS 1473	14171	USSR	6 JUL	114.4	74.0	1461	1392		
1983 069B	COSMOS 1474	14172	USSR	6 JUL	114.6	74.0	1461	1409		
1983 069C	COSMOS 1475	14173	USSR	6 JUL	114.8	74.0	1460	1427		
1983 069D	COSMOS 1476	14174	USSR	6 JUL	114.9	74.0	1461	1444		
1983 069E	COSMOS 1477	14175	USSR	6 JUL	115.1	74.0	1463	1459		
1983 069F	COSMOS 1478	14176	USSR	6 JUL	115.3	74.0	1480	1460		
1983 069G	COSMOS 1479	14177	USSR	6 JUL	115.5	74.0	1498	1460		
1983 069H	COSMOS 1480	14178	USSR	6 JUL	115.8	74.0	1518	1460		
1983 069J		14179	USSR	6 JUL	117.4	74.0	1671	1460		
1983 070A	COSMOS 1481	14182	USSR	8 JUL	707.3	67.5	36681	3155		
1983 070D		14191	USSR	8 JUL	708.0	67.6	36642	3228		
1983 070E		14192	USSR	8 JUL	708.9	67.6	36754	3160		
1983 070F		20412	USSR	8 JUL	705.8	67.6	36963	2797		
1983 072A		14189	US	14 JUL	717.4	63.3	20557	19780		
1983 072B		14190	US	14 JUL	371.8	63.7	20443	1055		
1983 073A	MOLNIYA 1-58	14199	USSR	19 JUL	624.6	64.0	34734	919		
1983 075A	COSMOS 1484	14207	USSR	24 JUL	96.7	97.7	630	572		
1983 075B		14208	USSR	24 JUL	97.1	97.7	648	594		
1983 075C		14209	USSR	24 JUL	96.9	97.7	641	574		
1983 075D		14229	USSR	24 JUL	97.4	97.7	664	507		
1983 075E		14631	USSR	24 JUL	96.8	97.6	626	585		
1983 075F		14928	USSR	24 JUL	97.1	97.7	647	595		
1983 077A	TELSTAR 3A	14234	US	28 JUL	1436.2	0.0	35792	35783		
1983 077C		14236	US	29 JUL	309.1	22.8	17352	178		
1983 078A		14237	US	31 JUL	CURRENT ELEMENTS NOT MAINTAINED					
1983 078B		14238	US	31 JUL	CURRENT ELEMENTS NOT MAINTAINED					
1983 079A	COSMOS 1486	14240	USSR	3 AUG	100.6	74.0	797	778		
1983 079B		14241	USSR	3 AUG	100.6	74.1	795	773		
1983 079C		14344	USSR	3 AUG	100.9	74.1	819	786		
1983 079D		14813	USSR	3 AUG	101.1	74.0	824	792		
1983 079E		15756	USSR	3 AUG	100.3	74.1	781	761		

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APDCEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1983 LAUNCHES (CONT.)										
1983 081A	CS-23	14248	JAPAN	5 AUG	1457.3	1.6	36216	36189		
1983 081C		14287	JAPAN	5 AUG	258.5	28.5	13956	173		
1983 084A	COSMOS 1490	14258	USSR	10 AUG	675.7	64.9	19173	19085		
1983 084B	COSMOS 1491	14259	USSR	10 AUG	668.4	64.7	19080	18810		
1983 084C	COSMOS 1492	14260	USSR	10 AUG	676.8	64.8	19159	19154		
1983 084F		14264	USSR	10 AUG	676.3	64.8	19156	19131		
1983 084G		14277	USSR	10 AUG	331.3	52.0	18577	388		
1983 084H		14278	USSR	10 AUG	330.3	52.2	18558	339		
1983 088A	RADUGA 13	14307	USSR	25 AUG	1466.9	4.5	36453	36319		
1983 088F		14333	USSR	25 AUG	1475.2	4.9	36628	36470		
1983 089B	INSAT 1B	14318	INDIA	31 AUG	1436.1	0.5	35815	35758		
1983 089C		14524	US	31 AUG	595.7	24.3	33910	239		
1983 090A	MOLNIYA 3-21	14313	USSR	30 AUG	716.2	64.5	39321	954		
1983 090D		14319	USSR	30 AUG	731.3	64.4	40099	918		
1983 091C	- 091AC	14328	USSR	31 AUG	SEE NOTE		38±			
1983 094A	RCA SATCOM VII	14329	US	8 SEP	1436.2	0.0	35846	35729		
1983 0943		14365	US	8 SEP	119.3	25.5	3013	288		
1983 098A	GALAXY 2	14372	USSR	22 SEP	1436.1	0.0	35795	35780		
1983 099A	COSMOS 1500	14372	USSR	28 SEP	97.3	82.5	647	613		
1983 099B		14373	USSR	28 SEP	97.5	82.5	656	622		
1983 100A	EKRAN 11	14377	USSR	30 SEP	1436.0	5.6	35798	35771		
1983 100F		14394	USSR	30 SEP	1425.0	5.5	35671	35468		
1983 103A	COSMOS 1503	14401	USSR	12 OCT	100.7	74.0	803	782		
1983 103B		14402	USSR	12 OCT	100.6	74.0	808	765		
1983 105A	INTELSAT 5 F-7	14421	ITSD	19 OCT	1436.1	0.0	35797	35777		
1983 106A	COSMOS 1506	14450	USSR	26 OCT	104.7	82.9	1009	947		
1983 108B		14451	USSR	26 OCT	104.5	82.9	999	946		
1983 109A	METEDR 2-10	14452	USSR	28 OCT	101.2	81.2	881	745		
1983 109B		14453	USSR	28 OCT	101.2	81.2	894	737		
1983 109C		14454	USSR	28 OCT	101.1	81.2	883	741		
1983 111A	COSMOS 1508	14483	USSR	11 NOV	108.0	82.9	1871	393		
1983 111B		14484	USSR	11 NOV	106.9	82.9	1792	370		
1983 113A		14506	US	18 NOV	101.2	98.4	824	805		
1983 113B		14553	US	18 NOV	99.4	98.6	731	726		
1983 113C		14554	US	18 NOV	99.5	98.6	734	731		
1983 113D		14609	US	18 NOV	99.8	98.6	754	739		
1983 113E		14610	US	18 NOV	100.2	98.6	776	760		
1983 114A	MOLNIYA 1-59	14516	USSR	23 NOV	716.2	64.3	39459	817		
1983 114D		14520	USSR	23 NOV	699.2	64.3	38410	1024		
1983 115A	COSMOS 1510	14521	USSR	24 NOV	116.0	73.6	1522	1477		
1983 115B		14522	USSR	24 NOV	115.9	73.6	1519	1476		
1983 115B	GORIZONT 9	14532	USSR	30 NOV	1465.4	4.1	36483	36234		
1983 118F		14549	USSR	30 NOV	1436.5	4.4	35981	35609		
1983 120A	COSMOS 1513	14546	USSR	8 DEC	104.8	82.9	1014	955		
1983 120B		14547	USSR	8 DEC	104.6	82.9	1010	941		
1983 122A	COSMOS 1515	14551	USSR	15 DEC	97.3	82.5	645	616		
1983 122B		14552	USSR	15 DEC	97.5	82.5	654	624		
1983 123A	MOLNIYA 3-22	14570	USSR	21 DEC	717.6	64.8	38516	1830		
1983 123D		14582	USSR	21 DEC	732.4	65.0	39127	1947		
1983 126A	COSMOS 1518	14587	USSR	28 DEC	713.9	67.0	37028	3136		

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1983 LAUNCHES (CONT.)										
1983 1260		14596	USSR	28 DEC	705.5	66.9	36615	3129		
1983 127A	COSMOS 1519	14590	USSR	29 DEC	675.7	66.0	19185	19073		
1983 127B	COSMOS 1520	14591	USSR	29 DEC	675.7	66.0	19146	19112		
1983 127C	COSMOS 1521	14592	USSR	29 DEC	673.4	66.0	19147	18994		
1983 127F		14595	USSR	29 DEC	673.1	66.0	19150	18975		
1983 127G		14607	USSR	29 DEC	332.9	52.1	18762	304		
1983 127H		14608	USSR	29 DEC	335.9	52.0	18927	328		

1984 LAUNCHES

1984 001A	COSMOS 1522	14611	USSR	5 JAN	115.4	74.0	1491	1459		
1984 001B	COSMOS 1522	14612	USSR	5 JAN	114.4	74.0	1459	1394		
1984 001C	COSMOS 1524	14613	USSR	5 JAN	114.6	74.0	1460	1410		
1984 001D	COSMOS 1525	14614	USSR	5 JAN	114.7	74.0	1459	1425		
1984 001E	COSMOS 1526	14615	USSR	5 JAN	114.9	74.0	1459	1440		
1984 001F	COSMOS 1527	14616	USSR	5 JAN	115.1	74.0	1460	1456		
1984 001G	COSMOS 1528	14617	USSR	5 JAN	115.3	74.0	1475	1459		
1984 001H	COSMOS 1529	14618	USSR	5 JAN	115.6	74.0	1509	1459		
1984 001J		14619	USSR	5 JAN	117.5	74.0	1679	1460		
1984 003A	COSMOS 1531	14624	USSR	11 JAN	105.0	82.9	1008	976		
1984 003B		14625	USSR	11 JAN	104.8	82.9	1002	968		
1984 005A	85-2A	14659	JAPAN	23 JAN	1453.8	1.7	36187	36079		
1984 007A	COSMOS 1534	14668	USSR	26 JAN	91.9	65.8	378	359		
1984 008A	PRC 14	14670	PRC	29 JAN	163.0	36.1	6536	479		
1984 009A		14675	US	31 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1984 009C		14677	US	31 JAN	ELEMENTS NOT AVAILABLE					
1984 010A	COSMOS 1535	14679	USSR	2 FEB	104.7	83.0	1013	951		
1984 010B		14680	USSR	2 FEB	104.6	83.0	1004	951		
1984 011E		14693	US	6 FEB	97.5	28.2	1005	274		
1984 011F		14694	US	3 FEB	99.0	27.7	1115	303		
1984 012A		14690	US	5 FEB	ELEMENTS NOT AVAILABLE					
1984 012B		14691	US	5 FEB	ELEMENTS NOT AVAILABLE					
1984 012C		14728	US	5 FEB	ELEMENTS NOT AVAILABLE					
1984 012D		14729	US	5 FEB	ELEMENTS NOT AVAILABLE					
1984 012F		14795	US	5 FEB	ELEMENTS NOT AVAILABLE					
1984 012J		15347	US	5 FEB	ELEMENTS NOT AVAILABLE					
1984 012K		15348	US	5 FEB	ELEMENTS NOT AVAILABLE					
1984 012L		15349	US	5 FEB	ELEMENTS NOT AVAILABLE					
1984 013A	COSMOS 1536	14699	USSR	8 FEB	97.3	82.5	644	617		
1984 013B		14700	USSR	8 FEB	97.5	82.5	654	624		
1984 016A	RADUGA 14	14725	USSR	15 FEB	1436.5	4.4	35803	35785		
1984 016F		17874	USSR	15 FEB	1435.9	4.3	35940	35625		
1984 019A	COSMOS 1538	14759	USSR	21 FEB	100.6	74.0	804	773		
1984 019B		14760	USSR	21 FEB	100.6	74.0	806	765		
1984 019C		15785	USSR	21 FEB	100.5	74.0	791	770		
1984 019D		18519	USSR	21 FEB	100.5	74.1	792	769		
1984 021A	LANDSAT 5	14780	US	1 MAR	98.7	98.2	701	697		
1984 021B	UOSAT 2	14781	UK	1 MAR	98.2	98.0	682	664		
1984 021C		14782	US	1 MAR	95.0	100.1	583	450		
1984 022A	COSMOS 1540	14783	USSR	2 MAR	1436.3	5.1	35823	35757		

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLT- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHz)	NOTES
1984 LAUNCHES (CONT.)										
1984 022E		14789	USSR	2 MAR	635.7	47.4	35994	232		
1984 022F		14948	USSR	2 MAR	1441.8	5.0	35999	35796		
1984 023A	INTELSAT 5 F-8	14786	ITSD	5 MAR	1436.1	0.0	35809	35766		
1984 023B		14787	ESA	5 MAR	554.3	11.0	31648	298		
1984 024A	COSMOS 1541	14790	USSR	6 MAR	718.5	63.8	37370	3021		
1984 024D		14796	USSR	6 MAR	709.8	64.1	36860	3098		
1984 027A	COSMOS 1544	14819	USSR	15 MAR	97.3	82.5	643	615		
1984 027B		14820	USSR	15 MAR	97.5	82.5	653	624		
1984 028A	EKRAN 12	14821	USSR	16 MAR	1499.1	5.8	37063	36958		
1984 028D		14828	USSR	16 MAR	624.7	46.6	35418	238		
1984 028F		15139	USSR	16 MAR	1419.7	5.6	35542	35388		
1984 029A	MOLNIYA 1-60	14825	USSR	16 MAR	717.2	64.8	38391	1934		
1984 029D		14830	USSR	16 MAR	730.9	65.0	38975	2023		
1984 031A	COSMOS 1546	14867	USSR	29 MAR	1436.0	4.2	35872	35695		
1984 031D		14897	USSR	29 MAR	566.9	45.3	32280	345		
1984 031F		14951	USSR	29 MAR	1448.4	4.3	36092	35962		
1984 033A	COSMOS 1547	14884	USSR	4 APR	718.8	67.5	37603	2801		
1984 033D		14894	USSR	4 APR	706.6	67.5	37096	2705		
1984 035A	PRC 15	14899	PRC	8 APR	1435.2	2.9	35792	35745		
1984 035B		14900	PRC	8 APR	627.4	31.1	35365	433		
1984 037A		14930	US	14 APR	ELEMENTS NOT AVAILABLE					
1984 037B		14931	US	14 APR	ELEMENTS NOT AVAILABLE					
1984 041A	GORIZONT 9	14940	USSR	22 APR	1436.3	4.1	35810	35769		
1984 041D		14943	USSR	22 APR	1460.1	4.2	36331	36178		
1984 041E		14944	USSR	22 APR	471.0	49.1	26940	408		
1984 043A	COSMOS 1550	14965	USSR	11 MAY	104.9	83.0	1010	969		
1984 043B		14966	USSR	11 MAY	104.8	83.0	998	971		
1984 046A	COSMOS 1553	14973	USSR	17 MAY	104.6	82.9	1006	956		
1984 046B		14974	USSR	17 MAY	104.7	82.9	998	953		
1984 047A	COSMOS 1554	14977	USSR	19 MAY	675.7	66.0	19172	19086		
1984 047B	COSMOS 1555	14978	USSR	19 MAY	675.7	66.0	19153	19105		
1984 047C	COSMOS 1556	14979	USSR	19 MAY	676.3	66.0	19161	19128		
1984 047F		14984	USSR	19 MAY	675.5	66.0	19172	19076		
1984 047G		15053	USSR	19 MAY	337.3	52.1	19016	330		
1984 047H		15054	USSR	19 MAY	327.2	52.1	18417	285		
1984 049A	SPACENET 1	14985	US	23 MAY	1436.1	0.0	35794	35781		
1984 052A	COSMOS 1559	14998	USSR	28 MAY	115.7	74.0	1508	1469		
1984 052B	COSMOS 1560	14999	USSR	28 MAY	115.5	74.0	1490	1468		
1984 052C	COSMOS 1561	15000	USSR	28 MAY	115.4	74.0	1483	1459		
1984 052D	COSMOS 1562	15001	USSR	28 MAY	115.2	74.0	1475	1451		
1984 052E	COSMOS 1563	15002	USSR	28 MAY	115.0	74.0	1474	1436		
1984 052F	COSMOS 1564	15003	USSR	28 MAY	114.8	74.0	1474	1422		
1984 052G	COSMOS 1565	15004	USSR	28 MAY	114.7	74.0	1474	1406		
1984 052H	COSMOS 1566	15005	USSR	28 MAY	114.5	74.0	1473	1392		
1984 052J		15006	USSR	28 MAY	117.7	74.0	1677	1473		
1984 055A	COSMOS 1569	15027	USSR	6 JUN	718.1	65.9	37447	2924		
1984 055D		15030	USSR	6 JUN	706.9	66.2	36840	2975		
1984 056A	COSMOS 1570	15031	USSR	8 JUN	100.8	74.1	804	784		
1984 056B		15032	USSR	8 JUN	100.6	74.1	802	775		
1984 056C		15033	USSR	8 JUN	101.0	74.1	819	794		

OBJECTS IN ORBIT				NOTES
INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	PERIOD MINUTES	
1984 LAUNCHES (CONT.)				
1984 056D		15757	8 JUN	PERIGEE KM.
1984 059A		15039	13 JUN	673
1984 059B		15040	13 JUN	20129
1984 062A	COSMOS 1574	15055	21 JUN	477
1984 062B		15056	21 JUN	965
1984 063A	RADUGA 15	15057	22 JUN	960
1984 063E		15076	22 JUN	35733
1984 063F		15693	22 JUN	174
1984 065C		15071	25 JUN	34889
1984 067A	COSMOS 1577	15077	27 JUN	ELEMENTS NOT AVAILABLE
1984 067B		15078	27 JUN	
1984 068A	COSMOS 1578	15080	28 JUN	954
1984 068B		15081	28 JUN	958
1984 069A	COSMOS 1579	15085	29 JUN	285
1984 069D		15330	29 JUN	160
1984 069E		19453	29 JUN	898
1984 071A	COSMOS 1581	15095	3 JUL	894
1984 071D		15098	3 JUL	842
1984 072A	METEOR 2-11	15099	5 JUL	2990
1984 072B		15100	5 JUL	2688
1984 078A	GORIZONT 10	15144	1 AUG	937
1984 078F		15181	1 AUG	938
1984 079A	COSMOS 1586	15147	1 AUG	35773
1984 080A	GMS 3	15156	2 AUG	35709
1984 080C		15152	2 AUG	2896
1984 081A	ECS 2	15157	2 AUG	2858
1984 081B	TELECOM 1A	15158	4 AUG	35782
1984 081C		15165	4 AUG	208
1984 081D		15166	4 AUG	35419
1984 083B - 083AX			7 AUG	35779
1984 084A	COSMOS 1589	15171	8 AUG	147
1984 084B		15172	8 AUG	641
1984 085A	MOLNIYA 1-61	15182	10 AUG	SEE NOTE 41*
1984 085D		15199	10 AUG	
1984 088A	CCE	15199	16 AUG	1489
1984 088B	IRM	15200	16 AUG	1488
1984 088C	UKS	15201	16 AUG	658
1984 088D		15202	16 AUG	720
1984 088E		15205	16 AUG	1026
1984 088F		15206	16 AUG	402
1984 088G		19008	16 AUG	113417
1984 088H		19599	16 AUG	1002
1984 089A	MOLNIYA 1-62	15214	24 AUG	546
1984 089D		15223	24 AUG	552
1984 090A	EKRAN 13	15219	24 AUG	424
1984 090F		17875	24 AUG	549
1984 091A		15226	24 AUG	553
1984 091B		15227	28 AUG	2100
1984 093B	SBS 4	15235	31 AUG	2429
				36951
				35428
				35780

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OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1984 LAUNCHES (CONT.)										
1984 093C	SYNCOM IV-2	15236	US	31 AUG	1436.1	1.6	35794	35780		35#
1984 093D	TELSTAR 3C	15237	US	1 SEP	1436.2	0.0	35795	35780		35#
1984 093E		15244	US	31 AUG	266.9	27.3	14404	304		
1984 093F		15245	US	31 AUG	612.1	23.0	34660	342		
1984 093G		15246	US	1 SEP	653.8	25.3	36799	351		
1984 095A	COSMOS 1593	15259	USSR	4 SEP	675.7	64.8	19174	19084		
1984 095B		15260	USSR	4 SEP	677.2	64.7	19191	19141		
1984 095C		15261	USSR	4 SEP	675.7	64.7	19173	19085		
1984 095F		15264	USSR	4 SEP	675.9	64.7	19152	19115		
1984 095G		15265	USSR	4 SEP	332.2	51.9	18741	281		
1984 095H		15266	USSR	4 SEP	334.7	51.8	18896	282		
1984 096A	COSMOS 1596	15267	USSR	7 SEP	717.5	66.6	37314	3029		
1984 096D		15270	USSR	7 SEP	703.2	66.8	36846	2785		
1984 097A		15271	US	8 SEP	718.0	63.5	20411	19952		
1984 097B		15272	US	8 SEP	369.2	63.6	20487	850		
1984 100A	COSMOS 1598	15292	USSR	13 SEP	1436.1	0.0	35797	35779		
1984 100B		15293	USSR	13 SEP	104.8	82.9	1001	965		
1984 101A	GALAXY 3	15308	US	21 SEP	1436.2	0.1	35867	35708		
1984 104B	- 104AF		USSR	27 SEP	SEE NOTE	40#				40#
1984 105A	COSMOS 1602	15331	USSR	28 SEP	97.4	82.5	648	618		
1984 105B		15332	USSR	28 SEP	97.5	82.5	656	624		
1984 106A	COSMOS 1603	15333	USSR	28 SEP	101.9	71.0	868	829		
1984 106C		15335	USSR	28 SEP	101.5	66.5	850	810		
1984 106F		15338	USSR	28 SEP	101.7	66.6	852	830		
1984 106G		17358	USSR	28 SEP	101.9	71.0	851	844		
1984 107A	COSMOS 1604	15350	USSR	4 OCT	717.2	65.5	37085	3239		
1984 107D		15355	USSR	4 OCT	708.1	65.8	36758	3117		
1984 108B	ER35	15354	US	5 OCT	96.5	56.9	599	591		
1984 109A	COSMOS 1605	15359	USSR	11 OCT	104.7	82.9	1016	946		
1984 109B		15360	USSR	11 OCT	104.6	82.9	1009	945		
1984 109B		15362	US	12 OCT	108.9	90.0	1197	1151		
1984 110A	COSMOS 1606	15369	USSR	18 OCT	97.3	82.5	646	614		
1984 111A		15370	USSR	18 OCT	97.5	82.5	654	621		
1984 111B	COSMOS 1607	15378	USSR	31 OCT	104.1	65.0	980	922		
1984 112A		15503	USSR	31 OCT	103.8	65.0	951	922		
1984 112C	ANIK D2	15383	CANADA	9 NOV	1436.0	0.0	35792	35770		35#
1984 113B	SYNCOM IV-1	15384	US	9 NOV	1436.0	1.1	35901	35670		35#
1984 113C		15387	US	9 NOV	627.0	25.5	35456	320		
1984 113D		15390	US	10 NOV	268.0	27.1	14488	294		
1984 114A	SPACENET 2	15385	US	10 NOV	1436.0	0.0	35790	35780		
1984 114B	MARECS B2	15386	ESA	10 NOV	1436.0	2.8	35799	35772		
1984 114C		15388	ESA	10 NOV	618.1	6.8	34962	351		
1984 115A	NATO III-D	15391	NATO	14 NOV	1436.3	1.3	35809	35771		
1984 115B		15392	US	14 NOV	115.9	21.5	2317	674		
1984 115C		15402	US	14 NOV	642.7	23.1	36157	428		
1984 118A	COSMOS 1610	15398	USSR	15 NOV	104.8	83.0	1009	964		
1984 122A		15399	USSR	15 NOV	104.7	82.9	1003	955		
1984 123A	NDA 9	15423	US	4 DEC	ELEMENTS NOT AVAILABLE					
1984 123A		15427	US	12 DEC	101.9	99.1	861	840		
1984 123B		15440	US	12 DEC	100.6	99.0	793	784		

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OBJECTS IN ORBIT										TRANSMITTING FREQ. (MHZ)	NOTES
INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.			
1984 LAUNCHES (CONT.)											
1984 123C		15441	US	12 DEC	100.4	99.0	782	768			
1984 124A	MOLNIYA 1-63	15429	USSR	14 DEC	718.1	63.2	38333	2035			
1984 124H		15439	USSR	14 DEC	733.4	63.4	38856	2264			
1984 125A	VEGA 1	15432	USSR	15 DEC	HELIOCENTRIC ORBIT						
1984 125D		15447	USSR	15 DEC	HELIOCENTRIC ORBIT						
1984 127A	COSMOS 1615	15446	USSR	20 DEC	89.5	65.8	255	239			
1984 128A	VEGA 2	15449	USSR	21 DEC	HELIOCENTRIC ORBIT						
1984 128B		15450	USSR	21 DEC	HELIOCENTRIC ORBIT						
1984 129A		15453	US	22 DEC	ELEMENTS NOT AVAILABLE						
1984 129B		15454	US	22 DEC	ELEMENTS NOT AVAILABLE						
1985 LAUNCHES											
1985 001A	MS-T5	15464	JAPAN	7 JAN	HELIOCENTRIC ORBIT						
1985 001B		15465	JAPAN	7 JAN	HELIOCENTRIC ORBIT						
1985 003A	COSMOS 1617	15469	USSR	15 JAN	114.0	82.6	1412	1409			
1985 003B	COSMOS 1618	15470	USSR	15 JAN	114.0	82.6	1412	1403			
1985 003C	COSMOS 1619	15471	USSR	15 JAN	113.7	82.6	1412	1379			
1985 003D	COSMOS 1620	15472	USSR	15 JAN	113.8	82.6	1412	1387			
1985 003E	COSMOS 1621	15473	USSR	15 JAN	113.8	82.6	1412	1391			
1985 003F	COSMOS 1622	15474	USSR	15 JAN	113.9	82.6	1412	1396			
1985 003G		15475	USSR	15 JAN	114.7	82.6	1469	1411			
1985 004A	MOLNIYA 3-23	15476	USSR	16 JAN	717.7	64.9	39093	1257			
1985 004D		15481	USSR	16 JAN	731.7	65.0	39745	1292			
1985 006A	COSMOS 1624	15482	USSR	17 JAN	100.7	74.0	801	780			
1985 006B		15483	USSR	17 JAN	100.6	74.0	799	769			
1985 006C		15490	USSR	17 JAN	100.6	74.0	791	786			
1985 006D		15491	USSR	17 JAN	101.0	74.0	820	793			
1985 007A	GORIZONT 11	15494	USSR	18 JAN	1436.1	3.3	35806	35768			
1985 007D		15487	USSR	18 JAN	1397.8	3.2	35098	34968			
1985 007F		15489	USSR	18 JAN	464.8	47.2	26824	173			
1985 009A	COSMOS 1626	15494	USSR	24 JAN	97.3	82.5	643	613			
1985 009B		15495	USSR	24 JAN	97.5	82.5	652	622			
1985 010B		15543	US	24 JAN	ELEMENTS NOT AVAILABLE						
1985 010C		15544	US	24 JAN	ELEMENTS NOT AVAILABLE						
1985 010D		15545	US	24 JAN	ELEMENTS NOT AVAILABLE						
1985 011A	COSMOS 1627	15505	USSR	1 FEB	104.8	82.9	1017	952			
1985 011B		15506	USSR	1 FEB	104.7	82.9	1006	953			
1985 013A	METEOR 2-12	15516	USSR	6 FEB	104.0	82.5	959	932			
1985 013B		15517	USSR	6 FEB	104.0	82.5	957	933			
1985 014A		15546	US	8 FEB	ELEMENTS NOT AVAILABLE						
1985 014B		15547	US	8 FEB	ELEMENTS NOT AVAILABLE						
1985 015A	ARABSAT 1	15560	SA	8 FEB	1436.1	0.1	35821	35750			
1985 015B	SRTS 1	15561	BRAZIL	8 FEB	1436.2	0.0	35800	35776			
1985 015C		15562	ESA	8 FEB	606.7	6.8	34395	325			
1985 016A	COSMOS 1629	15574	USSR	21 FEB	1435.1	3.5	35789	35746			
1985 016F		15581	USSR	21 FEB	1448.7	3.5	36139	35026			
1985 018A	COSMOS 1631	15584	USSR	27 FEB	92.4	65.8	407	376			
1985 020A	COSMOS 1633	15592	USSR	5 MAR	97.3	82.5	637	619			
1985 021A	GEOSAT	15595	US	13 MAR	100.5	108.0	785	782			

35*

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FRFQ.(MHZ)	NOTES
1985 LAUNCHES (CONT.)										
1985 021B	COSMOS 1634	15596	US	13 MAR	100.4	108.0	803	752		
1985 021C		15613	US	13 MAR	98.4	108.5	720	642		
1985 021D		15614	US	13 MAR	99.8	108.3	762	732		
1985 021E		15615	US	13 MAR	100.7	107.8	832	748		
1985 021F		15616	US	13 MAR	101.0	107.5	890	724		
1985 022A	COSMOS 1634	15597	USSR	14 MAR	104.7	82.9	1007	956		
1985 022B		15598	USSR	14 MAR	104.6	82.9	991	961		
1985 023A	COSMOS 1635	15617	USSR	21 MAR	115.8	74.1	1510	1472		
1985 023B	COSMOS 1636	15618	USSR	21 MAR	115.6	74.1	1492	1473		
1985 023C	COSMOS 1637	15619	USSR	21 MAR	115.4	74.1	1486	1462		
1985 023D	COSMOS 1638	15620	USSR	21 MAR	115.2	74.1	1478	1454		
1985 023E	COSMOS 1639	15621	USSR	21 MAR	115.1	74.1	1478	1438		
1985 023F	COSMOS 1640	15622	USSR	21 MAR	114.9	74.1	1478	1424		
1985 023G	COSMOS 1641	15623	USSR	21 MAR	114.8	74.1	1478	1409		
1985 023H	COSMOS 1642	15624	USSR	21 MAR	114.6	74.1	1476	1396		
1985 023J		15625	USSR	21 MAR	118.0	74.1	1710	1473		
1985 024A	EKRAN 14	15626	USSR	22 MAR	1519.1	4.4	37463	37327		
1985 024D		15626	USSR	22 MAR	1422.5	4.2	35585	35456		
1985 025A	INTELSAT VF10	15629	ITSO	22 MAR	1436.1	0.0	35802	35772		
1985 025B		15631	US	22 MAR	463.4	22.9	26705	210		
1985 028B	ANIK C1	15642	CANADA	13 APR	1436.0	0.0	35793	35778		35*
1985 028C	SYNCOM IV-3	15643	US	12 APR	1436.2	1.0	35808	35770		35*
1985 028E		15644	US	12 APR	607.6	23.1	34417	352		
1985 030D	- 030AA	16229	US	12 APR	282.5	27.0	15428	340		
1985 033A	PROGNOZ 10	15661	USSR	18 APR	SEE NOTE	43*	194734	5975		43*
1985 033D		15664	USSR	26 APR	5783.7	76.8	200315	420		
1985 035A	GSTAR 1	15677	US	8 MAY	5784.8	65.0	35795	35778		
1985 035B	TELECOM 1B	15678	FRANCE	8 MAY	1436.3	2.0	35799	35782		
1985 035C		15679	ESA	8 MAY	546.3	7.3	31247	267		
1985 035D		15680	ESA	8 MAY	304.5	6.8	16595	634		
1985 037A	COSMOS 1650	15697	USSR	17 MAY	675.7	64.8	19177	19081		
1985 037B	COSMOS 1651	15698	USSR	17 MAY	675.6	64.8	19145	19109		
1985 037C	COSMOS 1652	15699	USSR	17 MAY	675.8	64.8	19149	19115		
1985 037F		15702	USSR	17 MAY	675.0	64.8	19168	19055		
1985 037G		15714	USSR	17 MAY	337.6	52.1	19029	333		
1985 037H		15715	USSR	17 MAY	336.1	52.2	18949	321		
1985 040A	MOLNIYA 3-24	15738	USSR	29 MAY	717.6	63.3	38721	1622		
1985 040D		15741	USSR	29 MAY	732.3	63.2	39195	1870		
1985 041A	COSMOS 1655	15751	USSR	30 MAY	105.0	82.9	1015	972		
1985 041B		15752	USSR	30 MAY	104.9	82.9	1010	969		
1985 042A	COSMOS 1656	15755	USSR	30 MAY	101.5	71.1	856	803		
1985 042D		15772	USSR	30 MAY	101.5	71.1	854	802		
1985 042E		15773	USSR	30 MAY	101.2	66.6	835	793		
1985 042F		15774	USSR	30 MAY	101.3	66.6	832	807		
1985 042G		18764	USSR	30 MAY	100.3	66.6	844	698		
1985 042H		18765	USSR	30 MAY	101.6	66.6	838	831		
1985 042J		18766	USSR	30 MAY	103.0	66.6	966	835		
1985 042K		18767	USSR	30 MAY	104.6	66.6	1119	835		
1985 042L		18819	USSR	30 MAY	102.6	66.6	932	827		

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	OBJECTS IN ORBIT				PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
			SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION			
1985 LAUNCHES (CONT.)									
1985 045A	COSMOS 1658	15808	USSR	11 JUN	718.9	65.2	2203		
1985 045D		15811	USSR	11 JUN	709.3	65.8	2347		
1985 047A	COSMOS 1660	15821	USSR	14 JUN	116.0	73.6	1480		
1985 047B		15822	USSR	14 JUN	116.0	73.6	1479		
1985 048B	MORELOS A	15824	MEXICO	17 JUN	1436.1	0.0	35777		35*
1985 048C	ARABSAT 1B	15825	SA	18 JUN	1436.1	0.0	35755		35*
1985 048D	TELSTAR 3D	15826	US	19 JUN	1436.1	0.0	35780		35*
1985 048F		15832	US	17 JUN	630.5	25.8	383		
1985 048G		15836	US	18 JUN	623.4	27.1	390		
1985 048H		15837	US	18 JUN	656.0	26.0	402		
1985 049A	COSMOS 1661	15827	USSR	18 JUN	718.6	65.3	2817		
1985 049D		15830	USSR	18 JUN	724.7	66.0	2757		
1985 055A	INTELSAT VA F11	15873	ITSD	30 JUN	1436.1	0.0	35773		
1985 055B		15874	US	30 JUN	572.2	23.0	291		
1985 056A	GIOTTO	15875	ESA	2 JUL	HELIOCENTRIC ORBIT				
1985 056B		15876	ESA	2 JUL	498.2	8.1	288		
1985 056C		17255	ESA	2 JUL	598.8	8.5	314		
1985 056D		17325	ESA	2 JUL	588.3	7.3	293		
1985 056E		17332	ESA	2 JUL	516.7	7.4	529		
1985 058A	COSMOS 1666	15889	USSR	8 JUL	97.3	82.5	613		
1985 058B		15890	USSR	8 JUL	97.5	82.5	621		
1985 058C		19241	USSR	8 JUL	97.2	82.5	607		
1985 061A	MOLNIYA 3-25	15909	USSR	17 JUL	717.6	63.9	716		
1985 061D		15916	USSR	17 JUL	737.8	63.8	722		
1985 064A	COSMOS 1670	15930	USSR	1 AUG	104.1	64.9	892		
1985 066A	NNSS 30300	15935	US	3 AUG	107.9	89.9	999		
1985 066B	NNSS 30240	15936	US	3 AUG	107.9	89.9	998		
1985 066C		15938	US	3 AUG	107.9	89.9	999		
1985 066D		15950	US	3 AUG	107.3	89.9	977		
1985 066E		15951	US	3 AUG	107.4	89.9	982		
1985 066F		16020	US	3 AUG	107.6	90.3	1005		
1985 066G		17164	US	3 AUG	108.2	89.4	987		
1985 069A	COSMOS 1674	15944	USSR	8 AUG	97.3	82.5	614		
1985 069B		15945	USSR	8 AUG	97.5	82.5	622		
1985 070A	RADUGA 16	15946	USSR	8 AUG	1434.8	2.9	35767		
1985 070F		15963	USSR	8 AUG	1472.4	3.1	36551		
1985 071A	COSMOS 1675	15952	USSR	12 AUG	717.8	67.4	36434		
1985 071D		15955	USSR	12 AUG	708.3	67.2	2043		
1985 073A	PLANET A	15967	JAPAN	18 AUG	HELIOCENTRIC ORBIT				
1985 073C		15969	JAPAN	18 AUG	HELIOCENTRIC ORBIT				
1985 074A	MOLNIYA 1-64	15977	USSR	22 AUG	717.7	64.7	811		
1985 074D		15983	USSR	22 AUG	732.4	64.8	819		
1985 075A	COSMOS 1677	15986	USSR	23 AUG	103.9	64.7	881		
1985 076B	AUSSAT 1	15993	AUSTRAL	27 AUG	1436.2	0.0	35796		
1985 076C	ASC 1	15994	US	27 AUG	1436.1	0.0	35774		35*
1985 076D	SYNCOM IV-4	15995	US	29 AUG	1437.6	0.4	35795		35*
1985 076E		15996	US	27 AUG	636.5	25.9	346		
1985 076F		16001	US	29 AUG	280.9	27.4	356		
1985 076G		16007	US	29 AUG	633.7	26.5	373		
1985 077K		16389	USSR	29 AUG	104.8	71.0	842		

OBJECTS IN ORBIT										
INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ. (MHz)	NOTES
1985 LAUNCHES (CONT.)										
1985 077K		18608	USSR	29 AUG	100.6	74.1	798	775		
1985 077L		16390	USSR	29 AUG	105.1	71.0	1157	841		
1985 077M		16391	USSR	29 AUG	104.8	71.0	1128	839		
1985 077N		16392	USSR	29 AUG	104.9	71.0	1144	839		
1985 079A	COSMOS 1680	16011	USSR	4 SEP	100.7	74.1	801	778		
1985 079B		16012	USSR	4 SEP	100.5	74.1	796	773		
1985 079C		17754	USSR	4 SEP	101.0	74.1	821	788		
1985 082B -	082Z		USSR	19 SEP	SEE NOTE		42*			42*
1985 084A	COSMOS 1684	16064	USSR	24 SEP	717.2	62.8	37812	2512		
1985 084D		16070	USSR	24 SEP	706.0	63.5	37231	2539		
1985 086A	COSMOS 1686	16095	USSR	27 SEP	92.4	51.6	395	393		
1985 087A	INTELSAT VA F-12	16101	ITSO	29 SEP	1436.1	0.0	35801	35775		
1985 087B		16102	US	29 SEP	547.9	23.0	31320	282		
1985 088A	COSMOS 1687	16103	USSR	30 SEP	717.0	64.6	37197	3116		
1985 088D		16106	USSR	30 SEP	703.6	64.9	36849	2804		
1985 090A	COSMOS 1689	16110	USSR	3 OCT	96.3	97.8	615	544		
1985 090B		16111	USSR	3 OCT	96.8	97.8	648	565		
1985 091A	MOLNIYA 3-26	16112	USSR	3 OCT	717.7	64.6	38344	2007		
1985 091D		16125	USSR	3 OCT	734.0	64.8	39000	2151		
1985 092B		16116	US	3 OCT	ELEMENTS NOT AVAILABLE					35*
1985 092C		16117	US	3 OCT	ELEMENTS NOT AVAILABLE					35*
1985 092D		16118	US	3 OCT	ELEMENTS NOT AVAILABLE					
1985 092E		16119	US	3 OCT	ELEMENTS NOT AVAILABLE					
1985 093A		16129	US	9 OCT	718.1	63.9	20508	19864		
1985 093B		16137	US	9 OCT	368.2	63.8	20365	914		
1985 094A	COSMOS 1690	16138	USSR	9 OCT	113.7	82.6	1413	1379		
1985 094B	COSMOS 1691	16139	USSR	9 OCT	114.0	82.6	1413	1409		
1985 094C	COSMOS 1692	16140	USSR	9 OCT	113.8	82.6	1413	1386		
1985 094D	COSMOS 1693	16141	USSR	9 OCT	113.8	82.6	1413	1391		
1985 094E	COSMOS 1694	16142	USSR	9 OCT	113.9	82.6	1413	1396		
1985 094F	COSMOS 1695	16143	USSR	9 OCT	114.0	82.6	1413	1403		
1985 094G		16144	USSR	9 OCT	114.7	82.6	1467	1414		
1985 094K		16266	USSR	9 OCT	114.0	82.6	1424	1398		
1985 094L		16267	USSR	9 OCT	113.3	82.6	1427	1331		
1985 094M		16268	USSR	9 OCT	115.0	82.7	1514	1394		
1985 094N		16269	USSR	9 OCT	114.1	82.6	1422	1404		
1985 094P		16270	USSR	9 OCT	113.7	82.7	1601	1195		
1985 094Q		16271	USSR	9 OCT	114.0	82.6	1413	1404		
1985 094R		16272	USSR	9 OCT	113.5	82.6	1417	1355		
1985 094S		17168	USSR	9 OCT	113.5	82.6	1422	1351		
1985 094U		18777	USSR	9 OCT	114.0	82.6	1412	1410		
1985 097A	COSMOS 1697	16181	USSR	22 OCT	101.9	71.0	854	843		
1985 097B		16182	USSR	22 OCT	101.7	71.0	845	836		
1985 098A	COSMOS 1698	16183	USSR	22 OCT	717.8	63.7	37453	2903		
1985 098D		16186	USSR	22 OCT	707.9	63.9	37025	2842		
1985 099A	MOLNIYA 1-65	16187	USSR	23 OCT	718.1	64.7	38368	2004		
1985 099E		16197	USSR	23 OCT	698.0	64.6	37391	1984		
1985 100A	METEOR 3	16191	USSR	24 OCT	109.3	82.5	1208	1179		
1985 100B		16194	USSR	24 OCT	110.2	82.6	1245	1222		
1985 102A	COSMOS 1700	16199	USSR	25 OCT	1435.5	2.7	35794	35755		

INTER- NATIONAL DESIGNATION	NAME	OBJECTS IN ORBIT				PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
		CATALOG NUMBER	SOURCE	LAUNCH							
1985 LAUNCHES (CONT.)											
1985 102D		16214	USSR	25 OCT	1431.2	2.7	35786	35594			
1985 103A	MOLNIYA 1-66	16220	USSR	28 OCT	717.6	63.8	39856	489			
1985 103D		16223	USSR	28 OCT	701.0	63.8	38831	692			
1985 105A	COSMOS 1701	16235	USSR	9 NOV	716.9	67.2	38315	1993			
1985 105D		16243	USSR	9 NOV	706.2	67.3	37805	1977			
1985 107A	RADUGA 17	16250	USSR	15 NOV	1436.1	2.8	35799	35772			
1985 107F		16339	USSR	15 NOV	1477.1	2.8	36679	36489			
1985 108A	COSMOS 1703	16262	USSR	22 NOV	97.4	82.5	647	617			
1985 108B		16263	USSR	22 NOV	97.5	82.5	656	624			
1985 109B	MORELOS 8	16274	MEXICO	27 NOV	1436.1	0.0	35849	35724			35*
1985 109C	AUSSAT 2	16275	AUSTRL	27 NOV	1436.2	0.0	35796	35778			35*
1985 109D	SATCOM KU2	16276	US	28 NOV	1436.2	0.0	35797	35779			35*
1985 109F		16293	US	27 NOV	644.9	26.1	36292	401			
1985 109G		16294	US	27 NOV	640.0	26.5	36051	391			
1985 109H		16295	US	28 NOV	622.3	26.7	35139	392			
1985 110A	COSMOS 1704	16291	USSR	28 NOV	104.8	82.9	1006	961			
1985 110B		16292	USSR	28 NOV	104.6	82.9	996	955			
1985 113A	COSMOS 1707	16326	USSR	12 DEC	97.4	82.5	646	617			
1985 113B		16327	USSR	12 DEC	97.5	82.5	653	625			
1985 116A	COSMOS 1709	16368	USSR	19 DEC	104.8	82.9	1008	959			
1985 116B		16369	USSR	19 DEC	104.6	82.9	1001	953			
1985 117A	MOLNIYA 3-27	16393	USSR	24 DEC	717.6	63.1	38141	2206			
1985 117F		16402	USSR	24 DEC	732.6	63.2	38778	2306			
1985 118A	COSMOS 1710	16396	USSR	24 DEC	675.7	65.7	19149	19109			
1985 118B	COSMOS 1711	16397	USSR	24 DEC	675.7	65.8	19151	19107			
1985 118C	COSMOS 1712	16398	USSR	24 DEC	676.3	65.8	19155	19132			
1985 118F		16404	USSR	24 DEC	675.5	65.8	19145	19103			
1985 118K		16445	USSR	24 DEC	340.4	65.4	18797	744			
1985 118L		16446	USSR	24 DEC	340.3	65.2	18814	724			
1985 119A	METEOR 2-13	16408	USSR	26 DEC	104.0	82.5	956	934			
1985 119B		16409	USSR	26 DEC	104.0	82.5	955	935			
1985 121D		16437	USSR	28 DEC	93.1	71.0	489	361			
1985 121E		16438	USSR	28 DEC	91.3	70.9	374	299			
1985 121F		16439	USSR	28 DEC	89.2	71.0	248	223			
1986 LAUNCHES											
1986 002A	COSMOS 1716	16449	USSR	9 JAN	115.5	74.0	1489	1462			
1986 002B	COSMOS 1717	16450	USSR	9 JAN	115.8	74.0	1511	1473			
1986 002C	COSMOS 1718	16451	USSR	9 JAN	115.6	74.0	1494	1473			
1986 002D	COSMOS 1719	16452	USSR	9 JAN	115.3	74.0	1482	1453			
1986 002E	COSMOS 1720	16453	USSR	9 JAN	115.1	74.0	1482	1438			
1986 002F	COSMOS 1721	16454	USSR	9 JAN	115.0	74.0	1481	1425			
1986 002G	COSMOS 1722	16455	USSR	9 JAN	114.8	74.0	1482	1410			
1986 002H	COSMOS 1723	16456	USSR	9 JAN	114.6	74.0	1480	1398			
1986 002J		16457	USSR	9 JAN	117.9	74.0	1695	1478			
1986 003B	SATCOM KU1	16482	US	12 JAN	1436.2	0.0	35793	35782			
1986 003C		16483	US	12 JAN	623.0	27.2	35255	314			
1986 005A	COSMOS 1725	16493	USSR	17 JAN	104.8	82.9	1000	967			
1986 005B		16494	USSR	17 JAN	104.6	82.9	991	963			

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCL- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ. (MHz)	NOTES
1986 LAUNCHES (CONT.)										
1986 006A	COSMOS 1726	16495	USSR	17 JAN	97.3	82.5	643	614		
1986 006B		16496	USSR	17 JAN	97.5	82.5	653	622		
1986 007A	RADUGA 18	16497	USSR	17 JAN	1435.9	2.6	35798	35768		
1986 007E		16501	USSR	17 JAN	647.7	47.0	36585	252		
1986 007F		16870	USSR	17 JAN	1472.4	2.8	36645	36344		
1986 008A	COSMOS 1727	16510	USSR	23 JAN	104.8	82.9	1014	956		
1986 008B		16511	USSR	23 JAN	104.7	82.9	1003	957		
1986 010A	PRC 18	16526	PRC	1 FEB	1436.1	1.4	35788	35783		
1986 010B		16528	PRC	1 FEB	629.4	30.4	35512	390		
1986 011A	COSMOS 1729	16527	USSR	1 FEB	718.0	62.9	38429	1935		
1986 011F		16533	USSR	1 FEB	705.7	63.4	37731	2025		
1986 014A		16591	US	9 FEB	ELEMENTS NOT AVAILABLE					
1986 014B		16592	US	9 FEB	ELEMENTS NOT AVAILABLE					
1986 014C		16622	US	9 FEB	CURRENT ELEMENTS NOT MAINTAINED					
1986 014D		16623	US	9 FEB	CURRENT ELEMENTS NOT MAINTAINED					
1986 014E		16624	US	9 FEB	CURRENT ELEMENTS NOT MAINTAINED					
1986 014F		16625	US	9 FEB	CURRENT ELEMENTS NOT MAINTAINED					
1986 014G		16630	US	9 FEB	ELEMENTS NOT AVAILABLE					
1986 014H		16631	US	9 FEB	ELEMENTS NOT AVAILABLE					
1986 015A	COSMOS 1732	16593	USSR	11 FEB	116.0	73.6	1523	1477		
1986 015B		16594	USSR	11 FEB	115.9	73.6	1519	1476		
1986 016A	BS-2B	16597	JAPAN	12 FEB	1435.9	0.0	35797	35772		
1986 016C		16600	JAPAN	12 FEB	492.9	28.3	28338	245		
1986 017A	MIR	16609	USSR	19 FEB	92.2	51.6	393	375		
1986 017B	- 017BT		USSR	19 FEB	SEE NOTE					47*
1986 018A	COSMOS 1733	16611	USSR	19 FEB	97.3	82.5	644	614		
1986 018B		16612	USSR	19 FEB	97.5	82.5	652	622		
1986 019A	SPOT 1	16613	FRANCE	22 FEB	101.3	98.7	823	821		
1986 019B	VIKING	16614	SWEDEN	22 FEB	261.6	98.8	13526	814		
1986 019C	- 019VL		ESA	22 FEB	SEE NOTE					45*
1986 022C		16863	USSR	13 MAR	89.5	51.6	253	244		
1986 024A	COSMOS 1736	16647	USSR	21 MAR	104.4	65.0	1005	927		
1986 024B	- 024AF		USSR	21 MAR	SEE NOTE					44*
1986 026A	GSTAR 2	16649	US	28 MAR	1436.1	0.0	35795	35779		
1986 026B	SBTS 2	16650	BRAZIL	28 MAR	1436.2	0.0	35792	35782		
1986 026C		16657	ESA	28 MAR	653.8	6.5	36697	452		
1986 026E		17253	ESA	28 MAR	537.6	7.9	30733	309		
1986 026F		17254	ESA	28 MAR	519.1	8.7	29590	445		
1986 027A	COSMOS 1738	16667	USSR	4 APR	1436.6	2.5	35841	35749		
1986 027F		16676	USSR	4 APR	1474.1	2.5	36695	36358		
1986 030A	COSMOS 1741	16681	USSR	18 APR	100.7	74.0	805	776		
1986 030B		16682	USSR	18 APR	100.6	74.0	797	773		
1986 030C		17842	USSR	18 APR	101.0	74.0	824	791		
1986 030D		17843	USSR	18 APR	101.0	74.0	821	793		
1986 030E		18274	USSR	18 APR	100.6	74.1	816	753		
1986 030F		18526	USSR	18 APR	100.6	74.0	789	785		
1986 030G		18681	USSR	18 APR	101.1	74.0	824	792		
1986 030H		19235	USSR	18 APR	104.0	74.0	955	943		
1986 031A	MOLNIYA 3-28	16683	USSR	18 APR	718.0	64.8	38900	1462		
1986 031D		16686	USSR	18 APR	733.5	64.9	39684	1443		

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1986 LAUNCHES (CONT.)										
1986 034A	COSMOS 1743	16719	USSR	15 MAY	97.3	82.6	646	615		
1986 034B		16720	USSR	15 MAY	97.5	82.6	655	623		
1986 037A	COSMOS 1745	16727	USSR	23 MAY	104.8	83.0	1008	962		
1986 037B		16728	USSR	23 MAY	104.7	83.0	998	958		
1986 038A	EKRAN 15	16729	USSR	24 MAY	1491.6	3.4	36918	36812		
1986 038D		16732	USSR	24 MAY	1420.6	3.1	35616	35347		
1986 038E		16733	USSR	24 MAY	254.4	47.9	13280	559		
1986 039A	METEOR 2-14	16735	USSR	27 MAY	104.0	82.5	956	936		
1986 039B		16736	USSR	27 MAY	104.0	82.5	954	936		
1986 042A	COSMOS 1748	16758	USSR	6 JUN	115.1	74.0	1468	1451		
1986 042B	COSMOS 1749	16759	USSR	6 JUN	114.4	74.0	1467	1391		
1986 042C	COSMOS 1750	16760	USSR	6 JUN	114.6	74.0	1468	1406		
1986 042D	COSMOS 1751	16761	USSR	6 JUN	115.6	74.0	1503	1465		
1986 042E	COSMOS 1752	16762	USSR	6 JUN	115.4	74.0	1484	1466		
1986 042F	COSMOS 1753	16763	USSR	6 JUN	115.3	74.0	1475	1459		
1986 042G	COSMOS 1754	16764	USSR	6 JUN	114.9	74.0	1468	1435		
1986 042H	COSMOS 1755	16765	USSR	6 JUN	114.8	74.0	1468	1422		
1986 042J		16766	USSR	6 JUN	117.7	74.0	1681	1470		
1986 044A	GORIZONT 12	16769	USSR	10 JUN	1436.0	2.2	35793	35775		
1986 046A	COSMOS 1758	16791	USSR	12 JUN	97.4	82.5	656	615		
1986 046B		16792	USSR	12 JUN	97.5	82.5	660	620		
1986 047A	COSMOS 1759	16798	USSR	18 JUN	104.7	82.9	1001	962		
1986 047B		16799	USSR	18 JUN	104.6	82.9	1025	925		
1986 049A	MOLNIYA 3-29	16902	USSR	19 JUN	716.8	64.8	39780	524		
1986 049D		16805	USSR	19 JUN	733.1	64.9	40599	510		
1986 050A	COSMOS 1761	16849	USSR	5 JUL	716.8	63.6	37564	2741		
1986 050D		16854	USSR	5 JUL	710.0	63.9	37260	2709		
1986 052A	COSMOS 1763	16960	USSR	16 JUL	100.4	74.0	798	752		
1986 052B		16864	USSR	16 JUL	100.3	74.0	799	749		
1986 052C		16865	USSR	16 JUL	100.0	74.0	782	739		
1986 052E		16867	USSR	16 JUL	100.0	74.0	779	737		
1986 055A	COSMOS 1766	16831	USSR	28 JUL	97.4	82.5	649	620		
1986 055B		16832	USSR	28 JUL	97.5	82.5	655	626		
1986 057A	MOLNIYA 1-67	16885	USSR	30 JUL	717.9	64.7	39488	874		
1986 057D		16889	USSR	30 JUL	731.6	65.0	40185	848		
1986 061A	EGP	16908	JAPAN	12 AUG	115.7	50.0	1497	1479		
1986 061B	JAS-1	16909	JAPAN	12 AUG	115.7	50.0	1497	1480		
1986 061C		16910	JAPAN	12 AUG	116.9	50.0	1595	1483		
1986 062A	COSMOS 1771	16917	USSR	20 AUG	104.2	65.0	1003	907		
1986 062C		17035	USSR	20 AUG	103.9	65.0	977	903		
1986 065A	COSMOS 1774	16922	USSR	28 AUG	716.9	64.8	38795	1514		
1986 065D		16925	USSR	28 AUG	707.0	65.3	38114	1706		
1986 067B -	067AF		USSR	3 SEP	SEE NOTE 46#					46#
1986 068A	MOLNIYA 1-68	16934	USSR	5 SEP	717.7	64.6	38797	1555		
1986 068D		16939	USSR	5 SEP	731.3	64.7	39472	1545		
1986 070A	COSMOS 1777	16952	USSR	10 SEP	100.7	74.0	806	772		
1986 070B		16953	USSR	10 SEP	100.5	74.0	789	772		
1986 071A	COSMOS 1778	16961	USSR	16 SEP	675.7	64.8	19140	19118		

ORIGINAL PAGE IS
OF POOR QUALITY

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ. (MHz)	NOTES
1986 LAUNCHES (CONT.)										
1986 071B	COSMOS 1779	16962	USSR	16 SEP	675.7	64.8	19143	19115		
1986 071C	COSMOS 1780	16963	USSR	16 SEP	675.7	64.8	19151	19107		
1986 071F		16968	USSR	16 SEP	675.2	64.8	19141	19091		
1986 071G		16984	USSR	16 SEP	339.5	64.8	19129	355		
1986 071H		16985	USSR	16 SEP	339.4	64.9	19151	328		
1986 073A	NOAA 10	16969	US	17 SEP	101.1	98.6	823	803		
1986 073B		16982	US	17 SEP	100.1	98.7	769	755		
1986 073C		16983	US	17 SEP	99.4	98.7	744	719		
1986 074A	COSMOS 1782	16986	USSR	30 SEP	97.4	82.5	651	620		
1986 074B		16987	USSR	30 SEP	97.5	82.5	656	624		
1986 075A	COSMOS 1783	16996	USSR	3 OCT	358.0	63.3	19672	973		
1986 075D		16996	USSR	3 OCT	357.0	63.3	19618	964		
1986 078A	COSMOS 1785	17031	USSR	15 OCT	717.4	66.6	38727	1610		
1986 078D		17037	USSR	15 OCT	707.6	67.2	38210	1643		
1986 079A	MOLNIYA 3-30	17038	USSR	20 OCT	717.6	64.9	39430	913		
1986 079D		17041	USSR	20 OCT	699.0	64.8	38473	950		
1986 082A	RADUGA 19	17046	USSR	25 OCT	1436.0	1.9	35791	35778		
1986 082D		17052	USSR	25 OCT	637.1	45.9	36043	252		
1986 082E		17053	USSR	25 OCT	183.9	46.6	8513	155		
1986 082F		17065	USSR	25 OCT	1475.5	1.8	36687	36419		
1986 083A	COSMOS 1788	17050	USSR	27 OCT	92.6	65.8	420	383		
1986 086A	COSMOS 1791	17066	USSR	13 NOV	104.7	82.9	1011	948		
1986 086B		17067	USSR	13 NOV	104.6	83.0	1000	948		
1986 086C		18552	USSR	13 NOV	104.2	82.9	979	930		
1986 088A	POLAR BEAR	17070	US	14 NOV	104.8	89.5	1016	957		
1986 088B		17071	US	14 NOV	104.8	89.5	1014	956		
1986 088C		18426	US	14 NOV	105.1	89.1	1052	949		
1986 088D		18525	US	14 NOV	104.3	89.9	964	959		
1986 089A	MOLNIYA 1-69	17078	USSR	15 NOV	717.7	63.2	38245	2106		
1986 089D		17081	USSR	15 NOV	735.8	63.2	38915	2323		
1986 090A	GORIZONT 13	17083	USSR	18 NOV	1436.0	1.7	35794	35777		
1986 090D		17125	USSR	18 NOV	1436.1	1.6	35837	35737		
1986 090F		17149	USSR	18 NOV	632.9	47.3	35812	268		
1986 091A	COSMOS 1793	17134	USSR	20 NOV	717.8	64.8	38138	2219		
1986 091D		17147	USSR	20 NOV	705.9	65.3	37676	2089		
1986 092A	COSMOS 1794	17138	USSR	21 NOV	115.6	74.0	1498	1464		
1986 092B	COSMOS 1795	17139	USSR	21 NOV	115.4	74.0	1480	1464		
1986 092C	COSMOS 1796	17141	USSR	21 NOV	115.2	74.0	1476	1452		
1986 092D	COSMOS 1797	17141	USSR	21 NOV	115.0	74.0	1470	1442		
1986 092E	COSMOS 1798	17142	USSR	21 NOV	114.9	74.0	1470	1426		
1986 092F	COSMOS 1799	17143	USSR	21 NOV	114.7	74.0	1470	1412		
1986 092G	COSMOS 1800	17145	USSR	21 NOV	114.5	74.0	1469	1396		
1986 092H	COSMOS 1801	17145	USSR	21 NOV	114.4	74.0	1469	1383		
1986 092J		17146	USSR	21 NOV	117.6	74.0	1673	1475		
1986 093A	COSMOS 1802	17159	USSR	24 NOV	104.9	82.9	1021	958		
1986 093B		17160	USSR	24 NOV	104.8	82.9	1018	951		
1986 094A	COSMOS 1803	17177	USSR	2 DEC	115.9	82.6	1500	1494		
1986 094B		17178	USSR	2 DEC	115.9	82.6	1497	1493		
1986 094C		20284	USSR	2 DEC	117.4	83.2	1726	1401		
1986 096A		17181	US	5 DEC	1436.1	2.4	35864	35708		

INTER-NATIONAL DESIGNATION				NAME		OBJECTS IN ORBIT				PERIOD		INCLINATION		APOGEE		PERIGEE		TRANSMITTING		NOTES
DESIGNATION						CATALOG NUMBER	SOURCE	LAUNCH	MINUTES	NATION	KM.	KM.	KM.	FREQ.(MHZ)						
1986 LAUNCHES (CONT.)																				
1986 097A		COSMOS 1805		17191	USSR	10 DEC		97.3		82.5		643		619						
1986 097B				17192	USSR	10 DEC		97.5		82.5		652		625						
1986 098A		COSMOS 1806		17213	USSR	12 DEC		716.8		62.8		38286		2021						
1986 098D				17216	USSR	12 DEC		705.8		63.1		37775		1987						
1986 100A		COSMOS 1808		17239	USSR	17 DEC		105.0		82.9		1016		969						
1986 100B				17240	USSR	17 DEC		104.8		82.9		1009		964						
1986 100C				18545	USSR	17 DEC		104.5		82.9		992		949						
1986 101A		COSMOS 1809		17241	USSR	18 DEC		104.1		82.5		962		939						
1986 101B				17242	USSR	18 DEC		104.1		82.5		961		940						
1986 101C				17268	USSR	18 DEC		103.8		82.6		960		918						
1986 101D				17269	USSR	18 DEC		104.3		82.6		972		948						
1986 101E				17270	USSR	18 DEC		104.1		82.4		955		950						
1986 101F				17271	USSR	18 DEC		103.6		82.4		950		907						
1986 101G				17272	USSR	18 DEC		103.6		82.5		936		917						
1986 101H				17273	USSR	18 DEC		103.5		82.5		933		913						
1986 101J				17274	USSR	18 DEC		104.3		82.5		987		938						
1986 101K				17844	USSR	18 DEC		103.5		82.5		939		912						
1986 101L				18680	USSR	18 DEC		103.6		82.5		939		916						
1986 103A		MOLNIYA 1-70		17264	USSR	26 DEC		717.8		63.0		38907		1450						
1986 103D				17267	USSR	26 DEC		698.8		63.0		38153		1260						
1987 LAUNCHES																				
1987 001A		METEOR 2-15		17290	USSR	5 JAN		104.0		82.5		956		938				48*		
1987 001B				17291	USSR	5 JAN		104.0		82.5		954		938						
1987 003A		COSMOS 1812		17295	USSR	14 JAN		97.4		82.5		649		617						
1987 003B				17296	USSR	14 JAN		97.5		82.5		656		623						
1987 004C - 004HC					USSR	15 JAN		SEE NOTE 48*												
1987 006A		COSMOS 1814		17303	USSR	21 JAN		100.6		74.1		803		765						
1987 006B				17304	USSR	21 JAN		100.5		74.1		799		761						
1987 006C				18257	USSR	21 JAN		100.5		74.0		790		776						
1987 008A		MOLNIYA 3-31		17328	USSR	22 JAN		717.9		63.1		38399		1959						
1987 008D				17333	USSR	22 JAN		730.7		63.1		38926		2065						
1987 009A		COSMOS 1816		17359	USSR	29 JAN		104.8		82.9		1008		960						
1987 009B				17360	USSR	29 JAN		104.6		82.9		1005		949						
1987 011A		COSMOS 1818		17369	USSR	1 FEB		100.7		65.0		797		783						
1987 011C				17399	USSR	1 FEB		96.9		65.0		620		597						
1987 011D				17400	USSR	1 FEB		95.8		65.0		568		541						
1987 012A		ASTRO C		17480	JAPAN	5 FEB		95.2		31.1		584		474						
1987 012B				17481	JAPAN	5 FEB		96.1		31.1		648		496						
1987 012K				18927	JAPAN	5 FEB		95.6		30.8		608		490						
1987 015A				17506	US	12 FEB		ELEMENTS NOT AVAILABLE												
1987 015B				17507	US	12 FEB		ELEMENTS NOT AVAILABLE												
1987 017A		COSMOS 1821		17525	USSR	18 FEB		104.8		82.9		1014		958						
1987 017B				17526	USSR	18 FEB		104.6		82.9		1008		947						
1987 018A		MOS-1		17527	JAPAN	19 FEB		103.2		99.1		909		908						
1987 018B				17528	JAPAN	19 FEB		100.0		97.5		884		631						
1987 020A		COSMOS 1823		17535	USSR	20 FEB		116.0		73.6		1522		1477						
1987 020B				17536	USSR	20 FEB		115.9		73.6		1518		1477						
1987 020B - 020DQ					USSR	20 FEB		SEE NOTE 49*										49*		

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OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ. (MHZ)	NOTES
1987 LAUNCHES (CONT.)										
1987 022A	GOES 7	17561	US	26 FEB	1436.0	0.0	35818	35755		
1987 022B		17562	US	26 FEB	110.7	21.7	2278	243		
1987 022C		17563	US	26 FEB	675.0	17.8	37951	270		
1987 024A	COSMOS 1825	17566	USSR	3 MAR	97.3	82.5	644	617		
1987 024B		17567	USSR	3 MAR	97.5	82.5	652	624		
1987 026A	COSMOS 1827	17582	USSR	13 MAR	113.8	82.6	1409	1393		
1987 026B	COSMOS 1828	17583	USSR	13 MAR	113.7	82.6	1409	1381		
1987 026C	COSMOS 1829	17584	USSR	13 MAR	114.0	82.6	1411	1409		
1987 026D	COSMOS 1830	17585	USSR	13 MAR	113.9	82.6	1410	1404		
1987 026E	COSMOS 1831	17586	USSR	13 MAR	113.8	82.6	1409	1388		
1987 026F	COSMOS 1832	17587	USSR	13 MAR	113.9	82.6	1409	1398		
1987 026G		17588	USSR	13 MAR	114.6	82.6	1467	1409		
1987 027A	COSMOS 1833	17589	USSR	18 MAR	101.9	70.9	855	843		
1987 027B		17590	USSR	18 MAR	101.7	71.0	843	835		
1987 027C		18416	USSR	18 MAR	104.8	71.0	1125	840		
1987 027D		18417	USSR	18 MAR	105.0	71.0	1149	838		
1987 027E		18527	USSR	18 MAR	104.9	71.0	1138	840		
1987 027F		18550	USSR	18 MAR	104.6	71.0	1116	838		
1987 028A	RADUGA 20	17611	USSR	19 MAR	1436.1	1.9	35801	35773		
1987 028B		17705	USSR	19 MAR	1441.8	1.8	36007	35789		
1987 028C		17709	USSR	19 MAR	635.6	47.4	35901	318		
1987 028E		17706	INDNSA	20 MAR	1436.2	0.1	35802	35775		
1987 029A	PALAPA B-2P	17845	USSR	31 MAR	92.2	51.6	392	376		
1987 030A	KVANT 1	17902	USSR	24 APR	270.5	64.9	14774	175		
1987 036A	COSMOS 1836	17903	USSR	24 APR	272.3	64.8	14898	176		
1987 036B	COSMOS 1839	17904	USSR	24 APR	281.0	64.9	15479	184		
1987 036C	COSMOS 1840	17910	USSR	24 APR	261.1	64.9	14143	166		
1987 036H		17913	USSR	24 APR	176.2	64.7	7858	210		
1987 038A	COSMOS 1842	17911	USSR	27 APR	97.4	82.5	653	619		
1987 038B		17912	USSR	27 APR	97.5	82.5	658	623		
1987 040A	GORIZONT 14	17969	USSR	11 MAY	1436.2	3.5	35798	35776		
1987 040D		17972	USSR	11 MAY	1397.8	3.5	35092	34976		
1987 040E		18111	USSR	11 MAY	537.1	46.9	30892	128		
1987 040F		18112	USSR	11 MAY	597.7	47.0	34107	144		
1987 041A	COSMOS 1844	17973	USSR	13 MAY	101.9	70.9	854	843		
1987 041B		17974	USSR	13 MAY	101.7	71.0	846	828		
1987 041C		18410	USSR	13 MAY	105.0	71.0	1147	843		
1987 041D		18411	USSR	13 MAY	104.8	71.0	1129	843		
1987 041E		18412	USSR	13 MAY	104.8	71.0	1132	840		
1987 041F		18476	USSR	13 MAY	105.1	71.0	1155	842		
1987 041G		18687	USSR	13 MAY	100.7	71.0	795	783		
1987 043A		17997	US	15 MAY	ELEMENTS NOT AVAILABLE					
1987 043B		17998	US	15 MAY	ELEMENTS NOT AVAILABLE					
1987 043C		18007	US	15 MAY	ELEMENTS NOT AVAILABLE					
1987 043D		18008	US	15 MAY	ELEMENTS NOT AVAILABLE					
1987 043E		18009	US	15 MAY	ELEMENTS NOT AVAILABLE					
1987 043F		18010	US	15 MAY	ELEMENTS NOT AVAILABLE					
1987 043G		18024	US	15 MAY	ELEMENTS NOT AVAILABLE					
1987 043H		18025	US	15 MAY	ELEMENTS NOT AVAILABLE					
1987 048A	COSMOS 1849	18063	USSR	4 JUN	717.8	66.1	38885	1469		

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OF POOR QUALITY

INTER- NATIONAL DESIGNATION	NAME	OBJECTS IN ORBIT					CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1987 LAUNCHES (CONT.)															
1987 048D						18086	USSR	4 JUN	706.1	66.4	38356	1423			
1987 049A	COSMOS 1850					18095	USSR	9 JUN	100.7	74.0	801	779			
1987 049B						18096	USSR	9 JUN	100.5	74.0	797	771			
1987 050A	COSMOS 1851					18103	USSR	12 JUN	718.7	63.0	38958	1440			
1987 050D						18106	USSR	12 JUN	707.4	63.2	38359	1479			
1987 051A	COSMOS 1852					18113	USSR	16 JUN	115.6	74.0	1497	1471			
1987 051B	COSMOS 1853					18114	USSR	16 JUN	115.4	74.0	1480	1470			
1987 051C	COSMOS 1854					18115	USSR	16 JUN	115.3	74.0	1479	1456			
1987 051D	COSMOS 1855					18116	USSR	16 JUN	115.1	74.0	1475	1444			
1987 051E	COSMOS 1856					18117	USSR	16 JUN	114.9	74.0	1475	1429			
1987 051F	COSMOS 1857					18118	USSR	16 JUN	114.8	74.0	1475	1415			
1987 051G	COSMOS 1858					18119	USSR	16 JUN	114.6	74.0	1475	1400			
1987 051H	COSMOS 1859					18120	USSR	16 JUN	114.4	74.0	1474	1385			
1987 051J						18121	USSR	16 JUN	117.8	74.0	1685	1475			
1987 052A	COSMOS 1860					18122	USSR	18 JUN	104.0	65.0	993	900			
1987 052D						18241	USSR	18 JUL	103.7	65.0	969	894			
1987 053A						18123	US	20 JUN	101.8	98.8	852	833			
1987 053B						18127	US	20 JUN	101.1	98.8	819	801			
1987 053C						18128	US	20 JUN	100.8	98.8	798	789			
1987 054A	COSMOS 1861					18129	USSR	23 JUN	104.9	82.9	997	980			
1987 054B						18130	USSR	23 JUN	104.7	82.9	992	964			
1987 054C						18131	USSR	23 JUN	105.1	82.9	1020	973			
1987 055A	COSMOS 1862					18152	USSR	1 JUL	97.4	82.5	651	620			
1987 057A	COSMOS 1864					18160	USSR	6 JUL	104.7	82.9	1004	955			
1987 057B						18161	USSR	6 JUL	104.6	82.9	993	956			
1987 060A	COSMOS 1867					18187	USSR	10 JUL	100.7	65.0	801	782			
1987 060D						18524	USSR	10 JUL	95.8	65.0	564	546			
1987 062A	COSMOS 1869					18214	USSR	16 JUL	97.4	82.5	650	620			
1987 062B						18215	USSR	16 JUL	97.5	82.5	657	624			
1987 065C						19033	USSR	1 AUG	115.6	102.0	1500	1460			
1987 068A	METEOR 2-16					18312	USSR	18 AUG	104.0	82.6	956	930			
1987 068B						18313	USSR	18 AUG	104.0	82.6	956	938			
1987 070A	ETS-V					18316	JAPAN	27 AUG	1436.0	0.0	35802	35769			
1987 073A	EKRAN 16					18328	USSR	4 SEP	1492.5	1.7	36909	36857			
1987 073D						18331	USSR	4 SEP	1420.4	1.9	35567	35388			
1987 073E						18332	USSR	4 SEP	485.4	47.2	27829	335			
1987 074A	COSMOS 1875					18334	USSR	7 SEP	113.7	82.6	1408	1382			
1987 074B	COSMOS 1876					18335	USSR	7 SEP	114.0	82.6	1411	1408			
1987 074C	COSMOS 1877					18336	USSR	7 SEP	113.9	82.6	1408	1405			
1987 074D	COSMOS 1878					18337	USSR	7 SEP	113.9	82.6	1408	1398			
1987 074E	COSMOS 1879					18338	USSR	7 SEP	113.8	82.6	1408	1393			
1987 074F	COSMOS 1880					18339	USSR	7 SEP	113.8	82.6	1408	1388			
1987 074G						18340	USSR	7 SEP	114.6	82.6	1469	1408			
1987 078A	AUSSAT K3					18350	AUSTRL	16 SEP	1436.1	0.0	35794	35781			
1987 078B	EC5 4					18351	ESA	16 SEP	1436.1	0.1	35843	35730			
1987 078C						18352	ESA	16 SEP	416.0	7.2	23920	242			
1987 079A	COSMOS 1883					18355	USSR	16 SEP	675.7	65.5	19153	19105			
1987 079B	COSMOS 1884					18356	USSR	16 SEP	675.7	65.5	19153	19105			
1987 079C	COSMOS 1885					18357	USSR	16 SEP	675.7	65.5	19155	19103			
1987 079F						18360	USSR	16 SEP	674.7	65.4	19136	19072			

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OF POOR QUALITY

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1987 LAUNCHES (CONT.)										
1987 079G		18374	USSR	16 SEP	339.7	65.2	18895	602		
1987 079H		18375	USSR	16 SEP	339.7	65.0	18899	595		
1987 080A		18361	US	16 SEP	107.2	90.3	1180	1012		
1987 080B		18362	US	16 SEP	107.2	90.3	1182	1011		
1987 080C		18363	US	16 SEP	107.2	90.3	1182	1012		
1987 080E		18365	US	16 SEP	107.1	90.3	1172	1009		
1987 080F		18530	US	16 SEP	106.4	90.4	1125	996		
1987 080G		18561	US	16 SEP	107.1	90.3	1169	1013		
1987 080H		18562	US	16 SEP	107.8	90.2	1266	988		
1987 084A	COSMOS 1888	18384	USSR	1 OCT	1436.1	0.9	35800	35771		
1987 084E		18388	USSR	1 OCT	129.5	46.7	4108	89		
1987 087A	COSMOS 1891	18402	USSR	14 OCT	104.8	82.9	1023	950		
1987 087B		18403	USSR	14 OCT	104.7	82.9	1023	935		
1987 088A	COSMOS 1892	18421	USSR	20 OCT	97.4	82.5	645	619		
1987 088B		18422	USSR	20 OCT	97.5	82.5	654	626		
1987 090A		18441	US	26 OCT	ELEMENTS NOT AVAILABLE					
1987 091A	COSMOS 1894	18443	USSR	28 OCT	1436.1	1.0	35805	35768		
1987 091D		18446	USSR	28 OCT	1437.0	1.0	35889	35717		
1987 091F		18449	USSR	28 OCT	599.4	46.8	34204	135		
1987 095A	TVSAT 1	18570	FRG	21 NOV	1452.6	1.2	36161	36055		
1987 096A	COSMOS 1897	18575	USSR	26 NOV	1436.1	0.8	35788	35785		
1987 096D		18578	USSR	26 NOV	1431.8	0.7	35791	35613		
1987 097A		18583	US	29 NOV	ELEMENTS NOT AVAILABLE					
1987 097B		18584	US	29 NOV	ELEMENTS NOT AVAILABLE					
1987 098A	COSMOS 1898	18585	USSR	1 DEC	100.6	74.0	804	773		
1987 098B		18586	USSR	1 DEC	100.5	74.0	799	766		
1987 098C		18697	USSR	1 DEC	100.7	74.0	795	784		
1987 098D		18698	USSR	1 DEC	101.0	74.0	819	791		
1987 100A	RADUGA 21	18631	USSR	10 DEC	1435.9	0.8	35785	35781		
1987 100D		18634	USSR	10 DEC	1392.7	0.9	36533	33331		
1987 100E		18635	USSR	10 DEC	359.9	46.9	20592	173		
1987 100F		18636	USSR	10 DEC	376.5	45.0	21658	129		
1987 101A	COSMOS 1900	18665	USSR	12 DEC	99.3	66.1	755	692		
1937 105A	COSMOS 1903	18701	USSR	21 DEC	717.5	63.6	39296	1045		
1987 105D		18704	USSR	21 DEC	705.1	64.1	38667	1060		
1987 106A	COSMOS 1904	18709	USSR	23 DEC	104.8	82.9	1005	963		
1987 106B		18710	USSR	23 DEC	104.7	82.9	999	959		
1987 109A	EKRAN 17	18715	USSR	27 DEC	1436.0	0.4	35797	35772		
1987 109D		18718	USSR	27 DEC	1428.1	0.4	35886	35375		
1987 109E		18719	USSR	27 DEC	500.0	47.2	28681	298		
1988 LAUNCHES										
1988 001A	COSMOS 1908	18748	USSR	6 JAN	97.4	82.5	650	619		
1988 001B		18749	USSR	6 JAN	97.5	82.5	655	625		
1988 002A	COSMOS 1909	18788	USSR	15 JAN	114.0	82.6	1410	1408		
1988 002B	COSMOS 1910	18789	USSR	15 JAN	113.9	82.6	1409	1403		
1988 002C	COSMOS 1911	18790	USSR	15 JAN	113.9	82.6	1409	1397		
1988 002D	COSMOS 1912	18791	USSR	15 JAN	113.8	82.6	1409	1392		
1988 002E	COSMOS 1913	18792	USSR	15 JAN	113.7	82.6	1409	1387		

OF POOR QUALITY

INTER- NATIONAL DESIGNATION	NAME	OBJECTS IN ORBIT				PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
		CATALOG NUMBER	SOURCE	LAUNCH							
1988 LAUNCHES (CONT.)											
1988 002F	COSMOS 1914	18793	USSR	15 JAN	113.7	82.6	1409	1381			
1988 002G		18794	USSR	15 JAN	114.6	82.6	1468	1409			
1988 005A	METEOR 2-17	18820	USSR	30 JAN	104.0	82.5	957	933			
1988 005B		18821	USSR	30 JAN	103.9	82.5	954	934			
1988 006A		18922	US	3 FEB	101.3	98.7	823	812			
1988 006B		18845	US	3 FEB	100.2	98.7	772	763			
1988 006C		18846	US	3 FEB	100.0	98.7	763	757			
1988 006D		18955	US	3 FEB	100.3	98.7	777	767			
1988 006F		18984	US	3 FEB	100.5	98.7	788	779			
1988 012A	CS-3A	18877	JAPAN	19 FEB	1436.0	0.0	35787	35785			
1988 012C		18879	JAPAN	19 FEB	532.1	27.7	30556	192			
1988 013A	COSMOS 1922	18881	USSR	26 FEB	717.7	62.7	38576	1775			
1988 013C		18883	USSR	26 FEB	705.8	63.1	37945	1816			
1988 014A	PRC 22	18922	PRC	7 MAR	1436.2	0.0	35792	35784			
1988 016A	COSMOS 1924	18937	USSR	11 MAR	115.7	74.0	1513	1458			
1988 016B	COSMOS 1925	18938	USSR	11 MAR	115.5	74.0	1495	1457			
1988 016C	COSMOS 1926	18939	USSR	11 MAR	115.3	74.0	1477	1458			
1988 016D	COSMOS 1927	18940	USSR	11 MAR	115.1	74.0	1465	1453			
1988 016E	COSMOS 1928	18941	USSR	11 MAR	114.9	74.0	1459	1442			
1988 016F	COSMOS 1929	18942	USSR	11 MAR	114.7	74.0	1458	1427			
1988 016G	COSMOS 1930	18943	USSR	11 MAR	114.6	74.0	1458	1412			
1988 016H	COSMOS 1931	18944	USSR	11 MAR	114.4	74.0	1458	1396			
1988 016J		18945	USSR	11 MAR	117.6	74.0	1685	1462			
1988 016K		19451	USSR	11 MAR	117.6	74.0	1683	1459			
1988 017A	MOLNIYA 1-71	18946	USSR	11 MAR	717.7	63.2	38763	1584			
1988 017D		18949	USSR	11 MAR	695.6	62.9	38769	485			
1988 018A	SPACENET 3R	18951	US	11 MAR	1436.0	0.0	35789	35783			
1988 018B	TELECOM 1C	18952	FRANCE	11 MAR	1436.1	0.0	35790	35784			
1988 018C		18953	ESA	11 MAR	570.3	7.1	32537	268			
1988 019A	COSMOS 1932	18957	USSR	14 MAR	104.4	65.0	996	933			
1988 019D		19162	USSR	14 MAR	104.0	65.0	967	931			
1988 020A	COSMOS 1933	18958	USSR	15 MAR	97.4	82.5	648	621			
1988 020B		18959	USSR	15 MAR	97.5	82.5	653	624			
1988 021A	IRS-1A	18960	INDIA	17 MAR	103.1	99.0	913	894			
1988 021B		18961	USSR	17 MAR	102.8	98.9	924	857			
1988 022A	MOLNIYA 1-72	18980	USSR	17 MAR	717.6	64.4	39656	689			
1988 022D		18983	USSR	17 MAR	731.6	64.5	40356	679			
1988 023A	COSMOS 1934	18985	USSR	22 MAR	104.6	83.0	1007	946			
1988 023B		18986	USSR	22 MAR	104.5	83.0	994	947			
1988 028A	GORIZONT 15	19017	USSR	31 MAR	1436.2	0.5	35804	35773			
1988 028D		19020	USSR	31 MAR	1472.7	0.6	36594	36405			
1988 028E		19036	USSR	31 MAR	640.4	46.4	36344	122			
1988 028F		19037	USSR	31 MAR	621.6	46.4	35148	346			
1988 029A	COSMOS 1937	19038	USSR	5 APR	100.5	74.0	802	764			
1988 029B		19039	USSR	5 APR	100.4	74.1	800	754			
1988 032A	COSMOS 1939	19045	USSR	20 APR	97.1	97.9	636	599			
1988 032B		19046	USSR	20 APR	97.4	97.9	674	597			
1988 033A		19070	US	26 APR	108.5	90.3	1304	1012			
1988 033B		19071	US	26 APR	108.5	90.3	1302	1013			
1988 033C		19072	US	26 APR	108.5	90.3	1304	1013			

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OF POOR QUALITY

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CATALOG	SOURCE	LAUNCH
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PERIOD	INCL-
MINUTES	NATION

APOGEE
K.M.

PERIGEE
K.K.

TRANSMITTING
FREQ. (MHZ)

NOTES

1988	033D			19077	US	26	APR	108.3	90.3	1287	1008
1988	033E			19078	US	26	APR	107.6	90.6	1238	997
1988	033F			19140	US	26	APR	108.3	90.3	1282	1009
1988	033G			19181	US	26	APR	109.2	90.2	1384	993
1988	034A	COSMOS 1940		19073	USSR	26	APR	1430.4	0.5	35779	35571
1988	034D			19076	USSR	26	APR	1438.4	0.5	35953	35711
1988	034E			19082	USSR	26	APR	639.3	48.6	36022	387
1988	034F			19083	USSR	26	APR	649.6	47.3	36714	223
1988	036A	EKRAN 18		19090	USSR	6	MAY	1436.1	1.3	35798	35775
1988	036D			19093	USSR	6	MAY	608.3	46.3	34696	109
1988	036E			19094	USSR	6	MAY	1424.1	1.3	35661	35439
1988	039A	COSMOS 1943		19119	USSR	15	MAY	101.9	71.0	855	838
1988	039B			19120	USSR	15	MAY	101.6	71.0	850	814
1988	039C			19125	USSR	15	MAY	104.6	71.0	1113	839
1988	039D			19126	USSR	15	MAY	104.7	71.0	1122	841
1988	039E			19127	USSR	15	MAY	105.1	71.0	1159	841
1988	039F			19128	USSR	15	MAY	105.1	71.0	1155	842
1988	040A	INTELSAT 5A F-13		19121	ITSO	17	MAY	1436.0	0.0	35798	35772
1988	040B			19122	US	17	MAY	635.8	7.1	35730	497
1988	043A	COSMOS 1946		19163	USSR	21	MAY	675.7	64.9	19147	19110
1988	043B	COSMOS 1947		19164	USSR	21	MAY	675.7	64.9	19142	19116
1988	043C	COSMOS 1948		19165	USSR	21	MAY	675.7	64.9	19140	19117
1988	043F			19168	USSR	21	MAY	674.5	64.9	19127	19068
1988	043G			19169	USSR	21	MAY	339.9	65.4	18908	600
1988	043H			19170	USSR	21	MAY	339.9	65.3	18904	607
1988	044A	MOLNIYA 3-32		19189	USSR	26	MAY	717.7	64.2	39637	713
1988	044B			19190	USSR	26	MAY	733.0	64.3	40408	693
1988	045A	COSMOS 1949		19193	USSR	28	MAY	91.0	65.0	366	278
1988	046A	COSMOS 1950		19195	USSR	30	MAY	116.0	73.6	1519	1482
1988	046B			19196	USSR	30	MAY	116.0	73.6	1514	1482
1988	050A	COSMOS 1953		19210	USSR	14	JUN	97.5	82.5	653	620
1988	050B			19211	USSR	14	JUN	97.5	82.5	657	623
1988	051A	METEOSAT		19215	ESA	15	JUN	1436.0	0.2	35774	35774
1988	051B	OSCAR 13		19216	US	15	JUN	686.7	57.0	37241	1567
1988	051C	PAS-1		19217	US	15	JUN	1436.2	0.0	35797	35780
1988	051D			19218	US	15	JUN	1436.2	0.0	35797	35780
1988	051E			19219	ESA	15	JUN	508.3	10.5	29214	227
1988	051F			19220	ESA	15	JUN	619.3	10.5	35111	266
1988	051G			19220	ESA	15	JUN	544.5	9.8	31263	156
1988	051H			19851	ESA	15	JUN	634.1	7.2	35484	656
1988	052A			19951	ESA	15	JUN	632.1	8.0	35201	840
1988											

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1989 LAUNCHES (CONT.)										
1983 059B		19288	USSR	12 JUL	HELIOCENTRIC ORBIT					
1988 062A	COSMOS 1959	19324	USSR	18 JUL	104.7	83.0	1004	952		
1988 062B		19325	USSR	18 JUL	104.6	83.0	997	951		
1988 063A	INSAT 1C	19330	INDIA	21 JUL	1436.6	0.4	35823	35767		
1988 063B	ECS 5	19331	ESA	21 JUL	1436.1	0.0	35906	35666		
1988 063C		19332	ESA	21 JUL	554.5	7.2	31704	254		
1988 063E		20127	INDIA	21 JUL	635.3	7.3	35771	431		
1988 063F		20488	ESA	21 JUL	432.6	7.2	24883	252		
1988 064A	METEOR 3-2	19336	USSR	26 JUL	109.3	82.5	1206	1181		
1988 064B		19337	USSR	26 JUL	109.3	82.5	1204	1181		
1988 065A	COSMOS 1960	19338	USSR	28 JUL	89.5	65.8	256	240		
1988 065B	- 065AF		USSR	28 JUL	SEE NOTE					
1988 066A	COSMOS 1961	19344	USSR	1 AUG	1436.2	0.2	35810	35765		50*
1988 066D		19347	USSR	1 AUG	1459.6	0.2	36388	36102		
1988 066E		19348	USSR	1 AUG	468.0	46.9	26897	280		
1988 069A	MDLNIYA 1-73	19377	USSR	12 AUG	717.7	64.1	39958	393		
1988 069D		19380	USSR	12 AUG	731.8	64.2	40740	305		
1989 071A	GORIZONT 16	19397	USSR	18 AUG	1436.1	0.1	35804	35769		
1988 071D		19400	USSR	18 AUG	1432.1	0.2	35796	35619		
1988 071E		19401	USSR	18 AUG	600.1	46.7	34244	131		
1989 071F		19402	USSR	18 AUG	377.0	46.9	21607	210		
1988 074A		19419	US	25 AUG	107.4	89.9	1177	1031		
1988 074B		19420	US	25 AUG	107.3	89.9	1174	1032		
1988 074C		19421	US	25 AUG	107.4	89.9	1176	1034		
1988 074D		19515	US	25 AUG	107.3	89.9	1173	1028		
1988 074E		19516	US	25 AUG	107.2	89.9	1166	1029		
1988 074F		19559	US	25 AUG	107.3	89.4	1171	1028		
1988 074G		19577	US	25 AUG	107.3	90.5	1168	1033		
1988 076A	COSMOS 1966	19445	USSR	30 AUG	717.7	64.0	39094	1257		
1988 076D		19448	USSR	30 AUG	705.5	64.4	38502	1247		
1988 077A		19458	US	2 SEP	ELEMENTS NOT AVAILABLE					
1988 077B		19459	US	2 SEP	ELEMENTS NOT AVAILABLE					
1988 077C		19490	US	2 SEP	ELEMENTS NOT AVAILABLE					
1988 078A		19460	US	5 SEP	ELEMENTS NOT AVAILABLE					
1988 078B		19461	US	5 SEP	ELEMENTS NOT AVAILABLE					
1988 080A	FENGYUN 1	19457	PRC	6 SEP	102.7	99.2	940	831		
1988 080B		19468	PRC	6 SEP	102.7	99.2	897	876		
1988 081A	GSTAR 3	19483	US	8 SEP	1436.0	2.2	35790	35782		
1988 081B	SBS 5	19484	US	8 SEP	1436.1	0.0	35792	35781		
1988 081C		19485	ESA	8 SEP	555.1	7.3	31729	260		
1988 085A	COSMOS 1970	19501	USSR	16 SEP	675.7	65.2	19154	19104		
1988 085B	COSMOS 1971	19502	USSR	16 SEP	675.7	65.2	19161	19096		
1988 085C	COSMOS 1972	19503	USSR	16 SEP	675.7	65.2	19141	19117		
1988 085E		19505	USSR	16 SEP	674.9	65.2	19148	19067		
1988 085F		19535	USSR	16 SEP	339.4	65.1	19014	462		
1988 085G		19537	USSR	16 SEP	339.4	64.9	19024	454		
1988 086A	CS-33	19508	JAPAN	16 SEP	1436.0	0.0	35788	35786		
1988 086C		19558	JAPAN	16 SEP	629.3	27.9	35800	95		
1988 089A	NOAA 11	19531	US	24 SEP	102.0	0.0	863	844		
1988 089B		19532	US	24 SEP	101.0	98.9	814	799		

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHz)	NOTES	
1988 LAUNCHES (CONT.)											
1983 089C	MOLNIYA 3-33	19534	US	24 SEP	100.7	98.9	797	783			
1988 090A		19541	USSR	29 SEP	717.7	64.1	39902	447			
1988 090D		19544	USSR	29 SEP	698.3	64.1	38916	471			
1988 091B		TDRS 3	19548	US	29 SEP	1436.1	0.0	35797	35776		35#
1988 091C		19549	US	29 SEP	622.7	26.5	35200	355			
1988 091D		19550	US	29 SEP	1433.2	0.9	35796	35664			
1988 092A	COSMOS 1974	19554	USSR	3 OCT	717.6	62.8	39347	997			
1988 092D	COSMOS 1975	19557	USSR	3 OCT	705.4	63.1	38743	1001			
1988 093A		19573	USSR	11 OCT	97.4	82.5	653	619			
1988 093B	RADUGA 22	19574	USSR	11 OCT	97.5	82.5	657	622			
1988 093C		20471	USSR	11 OCT	97.4	82.5	648	615			
1988 095A		19596	USSR	20 OCT	1435.9	0.2	35799	35764			
1988 095E		19600	USSR	20 OCT	602.6	46.6	34363	144			
1988 095F	COSMOS 1977	19601	USSR	20 OCT	545.2	46.6	31321	138			
1988 095F		19777	USSR	20 OCT	1470.4	0.2	36512	36396			
1988 096A		19608	USSR	25 OCT	717.8	62.8	39070	1285			
1988 096D		19611	USSR	25 OCT	704.9	63.0	38385	1333			
1988 098A	TDF-1	19621	FRANCE	28 OCT	1436.2	0.0	35795	35780			
1988 098B		19622	FRANCE	28 OCT	601.5	4.6	34157	296			
1988 098C		20132	FRANCE	26 OCT	506.1	4.2	29068	249			
1983 099A		19625	US	6 NOV	ELEMENTS NOT AVAILABLE						
1988 099B		19626	US	6 NOV	ELEMENTS NOT AVAILABLE						
1988 102A	COSMOS 1980	19649	USSR	23 NOV	101.9	71.0	853	842			
1988 102B		19650	USSR	23 NOV	101.8	71.0	853	831			
1988 102C		19656	USSR	23 NOV	105.2	71.0	1162	843			
1988 102D		19657	USSR	23 NOV	105.2	71.0	1160	842			
1988 102E		19657	USSR	23 NOV	104.9	71.0	1140	842			
1988 102F		19658	USSR	23 NOV	104.8	71.0	1123	842			
1988 102G		19811	USSR	23 NOV	104.9	71.0	1140	843			
1988 102H		19813	USSR	23 NOV	105.2	71.0	1160	842			
1983 102J		20301	USSR	23 NOV	101.9	71.0	853	843			
1988 106B		19671	US	2 DEC	ELEMENTS NOT AVAILABLE						
1988 108A		EKARAN 19	19683	USSR	8 DEC	1436.1	0.2	35798	35774		
1988 108D			19686	USSR	8 DEC	1418.5	0.3	35612	35369		
1988 108E	19691		USSR	8 DEC	299.2	46.4	16769	108			
1988 108F	19699		USSR	10 DEC	572.2	46.7	32759	146			
1988 109A	SKYNET 49	19687	UK	11 DEC	1436.1	1.9	35800	35774			
1988 109B		19688	LUXBRG	11 DEC	1436.1	0.0	36024	35548			
1988 109C		19689	ESA	11 DEC	642.5	7.0	36139	435			
1988 109D		19690	ESA	11 DEC	468.2	7.2	26932	257			
1988 111A	PRC 25	19710	PRC	22 DEC	1436.1	0.1	35789	35785			
1988 112A		19713	USSR	22 DEC	717.8	62.8	39240	1114			
1988 112D		19716	USSR	22 DEC	696.1	62.9	38196	1083			
1988 113A		COSMOS 1985	19720	USSR	23 DEC	94.4	73.5	493	481		
1988 113H	MOLNIYA 1-74	19764	USSR	23 DEC	94.8	73.5	515	502			
1988 115A		19730	USSR	28 DEC	717.9	63.5	39935	425			
1988 115D		19733	USSR	28 DEC	696.6	63.5	38873	432			
1989 LAUNCHES											

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ. (MHZ)	NOTES
1989 001A	COSMOS 1987	19749	USSR	10 JAN	675.7	64.9	19147	19111		
1989 001B	COSMOS 1988	19750	USSR	10 JAN	675.7	64.9	19146	19112		
1989 001C	COSMOS 1989	19751	USSR	10 JAN	675.5	64.9	19149	19100		
1989 001E		19753	USSR	10 JAN	675.5	64.9	19153	19096		
1989 001F		19754	USSR	10 JAN	674.7	64.9	19144	19064		
1989 001G		19755	USSR	10 JAN	339.7	65.1	18940	557		
1989 001H		19856	USSR	10 JAN	339.7	65.2	18938	557		
1989 004A	GORIZONT 17	19765	USSR	26 JAN	1436.1	0.4	35794	35778		
1989 004D		19768	USSR	26 JAN	635.8	46.3	36005	225		
1989 004E		19771	USSR	26 JAN	411.1	46.6	23704	166		
1989 004F		19776	USSR	26 JAN	1469.5	0.4	36546	36329		
1989 005A	COSMOS 1992	19769	USSR	26 JAN	100.6	74.0	802	768		
1989 005B		19770	USSR	26 JAN	100.4	74.1	781	773		
1989 005C		19831	USSR	26 JAN	100.7	74.1	805	774		
1989 005D		19945	USSR	26 JAN	100.9	74.1	823	779		
1989 006A	INTELSAT 5A F-15	19772	ITSO	27 JAN	1436.2	0.0	35798	35781		
1989 006B		19773	ESA	27 JAN	638.0	7.7	35814	526		
1989 009A	COSMOS 1994	19785	USSR	10 FEB	113.9	82.6	1414	1392		
1989 009B	COSMOS 1995	19786	USSR	10 FEB	114.1	82.6	1414	1410		
1989 009C	COSMOS 1996	19787	USSR	10 FEB	114.0	82.6	1414	1404		
1989 009D	COSMOS 1997	19788	USSR	10 FEB	113.9	82.6	1414	1398		
1989 009E	COSMOS 1998	19789	USSR	10 FEB	113.8	82.6	1414	1388		
1989 009F	COSMOS 1999	19790	USSR	10 FEB	113.7	82.6	1414	1381		
1989 009G		19791	USSR	10 FEB	114.7	82.6	1470	1413		
1989 011A	COSMOS 2001	19796	USSR	14 FEB	717.6	63.1	39085	1259		
1989 011D		19799	USSR	14 FEB	705.8	63.3	38528	1231		
1989 013A		19802	US	14 FEB	718.0	55.1	20340	20024		
1989 014A	MOLNIYA 1-75	19807	USSR	15 FEB	717.8	63.2	39508	846		
1989 016A		19810	USSR	15 FEB	694.4	63.1	38378	816		
1989 016C	EXOS-D	19822	JAPAN	21 FEB	203.7	75.1	9904	272		
1989 016K		19824	JAPAN	21 FEB	199.0	75.1	9550	274		
1989 016L		19952	JAPAN	21 FEB	175.0	75.5	7834	135		
1989 016M		19962	JAPAN	21 FEB	191.7	75.7	9006	265		
1989 016P		19963	JAPAN	21 FEB	198.6	75.2	9532	265		
1989 017A	COSMOS 2004	20034	JAPAN	21 FEB	192.8	72.3	8808	547		
1989 018A	METEOR 2-18	19826	USSR	22 FEB	105.0	82.9	1013	971		
1989 018B		19851	USSR	28 FEB	104.0	82.5	956	937		
1989 020A	JCSAT-1	19852	USSR	28 FEB	104.0	82.5	959	936		
1989 020B	MOP-1	19874	JAPAN	6 MAR	1436.2	0.5	35815	35763		
1989 020C		19876	ESA	6 MAR	1436.3	0.5	35816	35764		
1989 020D		19877	ESA	6 MAR	418.7	6.5	24132	191		
1989 021B		19878	ESA	6 MAR	419.2	6.6	24146	208		
1989 021C	TDRS-D	19883	US	13 MAR	1436.0	0.0	35798	35774		
1989 021D		19884	US	13 MAR	596.5	26.6	33914	274		
1989 021E		19913	US	13 MAR	1431.2	3.0	35742	35640		
1989 025A	COSMOS 2008	19302	USSR	24 MAR	114.5	74.0	1469	1391		
1989 025B	COSMOS 2009	19903	USSR	24 MAR	114.6	74.0	1470	1406		
1989 025C	COSMOS 2010	19904	USSR	24 MAR	114.8	74.0	1470	1422		
1989 025D	COSMOS 2011	19905	USSR	24 MAR	115.0	74.0	1470	1437		
1989 025E	COSMOS 2012	19906	USSR	24 MAR	115.1	74.0	1470	1454		

ORBITAL LIST IS
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OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1989 LAUNCHES (CONT.)										
1989 025F	COSMOS 2013	19907	USSR	24 MAR	115.3	74.0	1478	1463		
1989 025G	COSMOS 2014	19908	USSR	24 MAR	115.5	74.0	1488	1468		
1989 025H	COSMOS 2015	19909	USSR	24 MAR	115.7	74.0	1507	1468		
1989 025J		19910	USSR	24 MAR	117.7	74.0	1683	1471		
1989 026A		19911	US	24 MAR	94.3	47.7	488	480		
1989 027A	TELE-X	19919	SWEDEN	2 APR	1436.1	0.0	35804	35769		
1989 027B		19920	ESA	2 APR	491.6	4.0	28290	220		
1989 028A	COSMOS 2016	19921	USSR	4 APR	104.7	83.0	1012	951		
1989 028B		19922	USSR	4 APR	104.6	83.0	1001	949		
1989 030A	RADUGA 23	19928	USSR	14 APR	1436.3	0.6	35806	35775		
1989 030D		19931	USSR	14 APR	1470.6	0.6	36520	36396		
1989 030F		19933	USSR	14 APR	597.5	46.8	34087	154		
1989 033B	MAGELLAN	19969	US	4 MAY	443.1	27.7	25484	266		
1989 033C		19970	US	4 MAY						
1989 033D		19971	US	4 MAY						
1989 035A		19976	US	10 MAY						
1989 035B		19977	US	10 MAY						
1989 035C		19983	US	10 MAY						
1989 039A	COSMOS 2022	20024	USSR	31 MAY	675.7	65.0	19139	19118		
1989 039B	COSMOS 2023	20025	USSR	31 MAY	675.7	65.0	19165	19093		
1989 039C	COSMOS 2024	20026	USSR	31 MAY	675.4	65.0	19144	19097		
1989 039E		20028	USSR	31 MAY	674.5	65.0	19144	19053		
1989 039F		20044	USSR	31 MAY	675.4	65.0	19146	19095		
1989 039G		20081	USSR	31 MAY	339.8	64.8	19066	437		
1989 039H		20082	USSR	31 MAY	339.8	65.1	19064	438		
1989 041A	SUPERBIRD A	20040	JAPAN	5 JUN	1436.2	0.0	35798	35776		
1989 041B		20041	FRG	5 JUN	1436.1	0.0	35800	35774		
1989 041C		20042	ESA	5 JUN	572.3	6.6	32705	205		
1989 041D		20043	ESA	5 JUN	444.9	6.8	25669	184		
1989 042A	COSMOS 2026	20045	USSR	7 JUN	104.7	82.9	1007	949		
1989 042B		20046	USSR	7 JUN	104.5	82.9	999	947		
1989 043A	MOLNIYA 3-35	20052	USSR	8 JUN	717.7	63.4	39897	451		
1989 043D		20055	USSR	8 JUN	734.4	63.4	40730	442		
1989 044A		20061	US	10 JUN	718.0	54.7	20400	19964		
1989 044C		20063	US	10 JUN	247.9	37.4	13220	163		
1989 045A	COSMOS 2027	20064	USSR	14 JUN	94.0	65.8	486	453		
1989 045B		20065	USSR	14 JUN	93.5	65.8	465	427		
1989 046A		20066	US	14 JUN						
1989 046B		20067	US	14 JUN						
1989 046C		20068	US	14 JUN						
1989 046D		20069	US	14 JUN						
1989 046E		20319	US	14 JUN						
1989 048A	RADUGA 1-1	20083	USSR	21 JUN	1436.0	0.8	35801	35769		
1989 048D		20086	USSR	21 JUN	1471.1	0.8	36575	36361		
1989 048E		20093	USSR	21 JUN	236.2	46.1	12459	100		
1989 048F		20094	USSR	21 JUN	588.0	46.4	33597	145		
1989 050A	NADEZHDA	20103	USSR	4 JUL	104.8	83.0	1010	957		
1989 050B		20104	USSR	4 JUL	104.7	83.0	1001	955		
1989 052A	GORIZONT 18	20107	USSR	5 JUL	1436.2	0.9	35802	35775		
1989 052D		20110	USSR	5 JUL	1397.3	0.9	35152	34893		

INTER- NATIONAL DESIGNATION	NAME	OBJECTS IN ORBIT					PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ. (MHZ)	NOTES
		CATALOG NUMBER	SOURCE	LAUNCH								
1989 LAUNCHES (CONT.)												
1989 052E		20115	USSR	5 JUL	420.2	46.6	24282	126				
1989 052F		20116	USSR	5 JUL	589.0	46.5	33635	162				
1989 053A	OLYMPUS	20122	ESA	12 JUL	1436.2	0.0	35807	35768				
1989 053B		20123	ESA	12 JUL	593.8	6.6	33842	204				
1989 053C		20229	ESA	12 JUN	641.9	6.6	36134	405				
1989 058A	COSMOS 2033	20147	USSR	24 JUL	92.8	65.0	416	402				
1989 059A	COSMOS 2034	20149	USSR	25 JUL	104.9	82.9	1010	964				
1989 059B		20150	USSR	25 JUL	104.7	82.9	1002	958				
1989 061B		20167	US	8 AUG	ELEMENTS NOT AVAILABLE							
1989 061C		20172	US	8 AUG	ELEMENTS NOT AVAILABLE							
1989 061D		20344	US	8 AUG	CURRENT ELEMENTS NOT MAINTAINED							
1989 062A	TV-SAT 2	20168	FRG	8 AUG	1436.2	0.1	35813	35762				
1989 062B	HIPPARCOS	20169	ESA	8 AUG	639.6	7.0	35933	492				
1989 062C		20170	ESA	8 AUG	634.8	7.6	35834	344				
1989 062D		20171	ESA	8 AUG	559.9	7.3	32042	204				
1989 064A		20185	US	18 AUG	718.0	54.9	20251	20113				
1989 067A		20187	US	18 AUG	150.6	37.7	5852	140				
1989 067C	BSR-R1	20193	UK	27 AUG	1436.2	0.0	35792	35783				
1989 068A	COSMOS 2037	20195	US	27 AUG	644.7	23.3	36412	272				
1989 068B		20196	USSR	28 AUG	116.0	73.6	1522	1482				
1989 069A		20197	USSR	28 AUG	116.0	73.6	1520	1483				
1989 069B		20202	US	4 SEP	ELEMENTS NOT AVAILABLE							
1989 069D		20203	US	4 SEP	ELEMENTS NOT AVAILABLE							
1989 069D		20205	US	4 SEP	CURRENT ELEMENTS NOT MAINTAINED							
1989 070A	GMS-4	20217	JAPAN	5 SEP	1436.1	1.3	35791	35784				
1989 070B		20230	JAPAN	5 SEP	657.1	28.2	37037	277				
1989 070C		20317	JAPAN	5 SEP	1458.1	1.3	37196	35235				
1989 072A		20220	US	6 SEP	CURRENT ELEMENTS NOT MAINTAINED							
1989 074A	COSMOS 2038	20232	USSR	14 SEP	113.8	82.6	1407	1390				
1989 074B	COSMOS 2039	20233	USSR	14 SEP	113.7	82.6	1407	1384				
1989 074C	COSMOS 2040	20234	USSR	14 SEP	114.0	82.6	1414	1406				
1989 074D	COSMOS 2041	20235	USSR	14 SEP	113.8	82.6	1407	1395				
1989 074E	COSMOS 2042	20236	USSR	14 SEP	113.9	82.6	1407	1400				
1989 074F	COSMOS 2043	20237	USSR	14 SEP	113.9	82.6	1409	1405				
1989 077A		20238	USSR	14 SEP	114.7	82.6	1472	1407				
1989 077A		20253	US	25 SEP	1436.1	4.7	35809	35764				
1989 077B		20254	US	25 SEP	557.3	28.2	31906	205				
1989 078A	MOLNIYA 1-76	20255	USSR	27 SEP	717.8	62.8	39590	762				
1989 078D		20258	USSR	27 SEP	698.4	62.8	38652	741				
1989 079A	COSMOS 2046	20259	USSR	27 SEP	92.8	65.0	416	402				
1989 080A	INTER-COSMOS 24	20261	USSR	28 SEP	115.7	82.6	2480	498				
1989 080B		20281	USSR	28 SEP	115.7	82.6	2479	497				
1989 080C		20262	USSR	28 SEP	115.8	82.6	2483	498				
1989 081A	GORIZANT 19	20263	USSR	28 SEP	1436.1	1.0	35793	35778				
1989 081D		20266	USSR	28 SEP	1431.2	1.1	35816	35565				
1989 081C		20270	USSR	28 SEP	536.0	46.8	30844	115				
1989 081F		20271	USSR	28 SEP	616.8	46.8	35087	159				
1989 084B	GALILEO	20298	US	18 OCT	ELEMENTS NOT AVAILABLE							
1989 084C		20299	US	18 OCT	CURRENT ELEMENTS NOT MAINTAINED							
1989 084D		20300	US	18 OCT	ELEMENTS NOT AVAILABLE							

OBJECTS IN ORBIT

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1989 LAUNCHES (CONT.)										
1989 085A		20302	US	21 OCT	718.0	54.7	20283	20079		
1989 085B		20303	US	21 OCT	99.4	35.7	965	494		
1989 085C		20304	US	21 OCT	322.6	37.6	18224	185		
1989 085A	METEOR 3-3	20305	USSR	24 OCT	109.4	82.5	1209	1186		
1989 085B		20306	USSR	24 OCT	109.4	82.5	1209	1184		
1989 087A	INTELSAT 6A	20315	ITSO	27 OCT	1436.1	0.1	35833	35740		
1989 087B		20316	ESA	27 OCT	628.5	6.9	35581	270		
1989 088A	COSMOS 2049	20320	USSR	17 NOV	89.5	64.8	268	227		
1989 089A	COBE	20322	US	18 NOV	102.7	99.0	892	883		
1989 089B		20323	US	18 NOV	99.9	97.1	810	697		
1989 089C		20324	US	18 NOV	102.6	99.0	892	869		
1989 089D		20326	US	18 NOV	102.7	99.0	892	884		
1989 090B		20355	US	23 NOV	ELEMENTS NOT AVAILABLE					
1989 090C		20356	US	23 NOV	ELEMENTS NOT AVAILABLE					
1989 090D		20357	US	23 NOV	ELEMENTS NOT AVAILABLE					
1989 091A	COSMOS 2050	20330	USSR	23 NOV	717.7	63.1	39702	649		
1989 091D		20333	USSR	23 NOV	705.2	63.1	39067	664		
1989 092A	COSMOS 2051	20334	USSR	24 NOV	92.7	64.9	416	401		
1989 093A	KVANT -2	20335	USSR	26 NOV	92.2	51.6	393	374		
1989 094A	MOLNIYA 3-36	20338	USSR	28 NOV	717.8	62.8	39639	715		
1989 094B		20339	USSR	28 NOV	732.2	62.9	40347	717		
1989 096A	SRANAT	20352	USSR	1 DEC	5903.5	56.5	202103	1542		
1989 096B		20353	USSR	1 DEC	104.4	54.6	1711	223		
1989 096C		20354	USSR	1 DEC	5791.6	51.5	199392	1264		
1989 096D		20358	USSR	1 DEC	104.7	51.5	1738	223		
1989 097A		20361	US	11 DEC	717.9	55.0	20340	20021		
1989 097B		20362	US	11 DEC	99.3	35.6	957	492		
1989 097C		20363	US	11 DEC	272.0	37.7	14916	138		
1989 097A	RADUGA 24	20367	USSR	15 DEC	1436.0	1.3	35805	35763		
1989 098A		20370	USSR	15 DEC	1471.6	1.3	36569	36388		
1989 098D		20372	USSR	15 DEC	646.9	46.9	36545	251		
1989 098E		20372	USSR	15 DEC	642.9	46.9	36391	199		
1989 098F	COSMOS 2053	20389	USSR	27 DEC	95.0	73.5	527	509		
1989 100A		20390	USSR	27 DEC	95.1	73.5	529	512		
1989 100B		20515	USSR	27 DEC	93.9	73.5	471	456		
1989 100H		20522	USSR	27 DEC	94.1	73.5	489	462		
1989 100J		20531	USSR	27 DEC	94.2	73.5	491	473		
1989 100K		20532	USSR	27 DEC	94.4	73.5	504	479		
1989 100L		20532	USSR	27 DEC	1436.0	1.3	35803	35767		
1989 101A	COSMOS 2054	20391	USSR	27 DEC	1465.7	1.3	36415	36313		
1989 101D		20394	USSR	27 DEC	644.3	46.9	36394	272		
1989 101E		20399	USSR	27 DEC	641.3	46.9	36290	220		
1989 101F		20400	USSR	27 DEC	641.3	46.9	36290	220		
1990 LAUNCHES										
1990 001A	SKYNET 4A	20401	US	1 JAN	1436.2	3.3	35794	35783		
1990 001B	JCSAT	20402	JAPAN	1 JAN	1436.2	0.0	35794	35782		
1990 001D		20406	US	1 JAN	613.3	21.4	34763	305		
1990 001F		20406	US	1 JAN	340.5	26.7	19232	316		
1990 002B	LEASAT 5	20410	US	9 JAN	1435.9	3.3	36303	35263		

INTER- NATIONAL DESIGNATION	NAME	OBJECTS IN ORBIT					PERIOD MINUTES	INCLI- NATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
		CATALOG NUMBER	SOURCE	LAUNCH								
1990 LAUNCHES (CONT.)												
1990 002C	COSMOS 2056	20411	US	9 JAN	276.2	27.3	15025			318		
1990 004A		20432	USSR	18 JAN	100.7	74.0	807			772		
1990 004B		20433	USSR	18 JAN	100.6	74.0	811			758		
1990 004C		20434	USSR	18 JAN	101.1	74.0	824			793		
1990 004D		20435	USSR	18 JAN	100.6	74.0	805			769		
1990 005A	SPOT-2	20436	FRANCE	22 JAN	101.3	98.7	822			821		
1990 005B	OSCAR 14	20437	UK	22 JAN	100.7	98.7	802			784		
1990 005C	OSCAR 15	20438	US	22 JAN	100.8	98.7	802			786		
1990 005D	OSCAR 16	20439	US	22 JAN	100.7	98.7	802			784		
1990 005E	OSCAR 17	20440	US	22 JAN	100.7	98.7	802			784		
1990 005F	OSCAR 18	20441	US	22 JAN	100.7	98.7	802			783		
1990 005G	OSCAR 19	20442	US	22 JAN	100.7	98.7	802			783		
1990 005H		20443	ESA	22 JAN	100.6	98.6	796			779		
1990 006A	MOLNIYA 3	20444	USSR	23 JAN	717.6	62.8	39763			590		
1990 006C		20446	USSR	23 JAN	697.6	62.9	38772			584		
1990 007A	MUSES A	20448	JAPAN	24 JAN	ELEMENTS NOT AVAILABLE							
1990 007C		20451	JAPAN	24 JAN	ELEMENTS NOT AVAILABLE							
1990 007D	HAGOROMA	NNA	JAPAN	19 MAR	SELENCENTRIC ORBIT							
1990 008A		20452	US	24 JAN	718.0	54.6	20275			20088		
1990 008B		20453	US	24 JAN	102.5	35.6	1306			451		
1990 008C		20450	US	24 JAN	336.0	37.6	19108			153		
1990 010A	COSMOS 2058	20465	USSR	30 JAN	ELEMENTS NOT AVAILABLE							
1990 010B		20466	USSR	30 JAN	97.6	82.5	662			627		
1990 011A	PRC-26	20473	PRC	4 FEB	1436.0	0.1	35790			35780		
1990 011B		20474	PRC	4 FEB	624.8	30.5	35397			263		
1990 012A	COSMOS 2059	20476	USSR	6 FEB	107.4	65.8	2021			188		
1990 012B		20477	USSR	6 FEB	105.0	65.8	1812			176		
1990 013A	MOS 18	20478	JAPAN	7 FEB	103.2	99.2	909			908		
1990 013B	DEBUT	20479	JAPAN	7 FEB	112.2	99.0	1742			909		
1990 013C	JAS 1-B	20480	JAPAN	7 FEB	112.2	99.1	1742			909		
1990 013D		20491	JAPAN	7 FEB	110.5	99.0	1607			890		
1990 014A	SOYUZ TM-9	20494	USSR	11 FEB	92.2	51.6	393			374		
1990 015A		20496	US	14 FEB	95.4	43.1	549			529		
1990 015B		20497	US	14 FEB	93.9	43.1	475			455		
1990 015C		20498	US	14 FEB	93.4	41.6	465			415		
1990 016A	RADUGA 25	20499	USSR	15 FEB	1436.2	1.4	35807			3576A		
1990 016D		20502	USSR	15 FEB	1439.8	1.4	36016			35701		
1990 016E		20506	USSR	15 FEB	636.3	47.3	35947			305		
1990 016F		20507	USSR	15 FEB	634.6	47.2	35917			251		
1990 017A	NADEZHDA-2	20508	USSR	27 FEB	104.8	83.0	1017			953		
1990 017B		20509	USSR	27 FEB	104.7	83.0	1011			949		
1990 018A	OKEAN-2	20510	USSR	28 FEB	97.7	82.5	663			634		
1990 018B		20511	USSR	28 FEB	97.7	82.5	663			633		
1990 019B		20516	US	28 FEB	ELEMENTS NOT AVAILABLE							
1990 019C		20517	US	28 FEB	ELEMENTS NOT AVAILABLE							
1990 019D		20518	US	28 FEB	ELEMENTS NOT AVAILABLE							
1990 019E		20519	US	28 FEB	ELEMENTS NOT AVAILABLE							
1990 019F		20520	US	28 FEB	ELEMENTS NOT AVAILABLE							
1990 019G		20521	US	28 FEB	ELEMENTS NOT AVAILABLE							
1990 020A	PROGRESS M-3	20513	USSR	28 FEB	90.6	51.6	331			276		

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INTER-NATIONAL DESIGNATION		NAME		CATALOG NUMBER		SOURCE		LAUNCH		PERIOD MINUTES		INCLINATION		APOGEE KM.		PERIGEE KM.		TRANSMITTING FREQ.(MHZ)		NOTES	
1990 LAUNCHES (CONT.)																					
1990 021A		INTELSAT-6		20523		ITSO		14 MAR		95.9		28.4		574		549					
1990 022A		COSMOS 2060		20525		USSR		14 MAR		92.8		65.0		416		402					
1990 023A		COSMOS 2061		20527		USSR		20 MAR		105.0		82.9		1014		970					
1990 023B				20528		USSR		20 MAR		104.8		82.9		1005		968					
1990 024A		COSMOS 2062		20529		USSR		22 MAR		89.6		82.3		283		228					
1990 025A				20533		US		26 MAR		716.0		55.1		20207		20059					
1990 025B				20534		US		26 MAR		69.7		30.2		355		169					
1990 025C				20535		US		26 MAR		351.6		37.6		20087		161					
1990 026A		COSMOS 2063		20536		USSR		27 MAR		717.6		62.8		39737		608					
1990 026B				20537		USSR		27 MAR		91.9		62.8		529		210					
1990 026C				20538		USSR		27 MAR		91.3		62.8		506		174					
1990 026D				20539		USSR		27 MAR		709.3		63.0		39319		617					

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INITIAL ELEMENTS OF OBJECTS WHICH WERE LAUNCHED/CATALOGED AND DECAYED WITHIN THE REPORTING PERIOD

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLIN- NATION	APOGEE KM.	PERIGEE KM.	NOTES
1987 0200Q		20454	USSR	20 FEB	96.3	73.2	664	498	
1990 001C		20403	US	1 JAN	94.4	28.6	815	193	
1990 001E		20405	US	1 JAN	90.0	28.6	400	148	
1990 002A	STS 32	20409	US	9 JAN	91.2	28.5	342	323	
1990 003A	COSMOS 2055	20426	USSR	17 JAN	89.6	62.8	280	251	
1990 003B		20427	USSR	17 JAN	89.5	62.8	273	250	
1990 003C		20428	USSR	17 JAN	89.4	62.8	131	112	
1990 003D	COSMOS 2055	20429	USSR	17 JAN	89.4	62.7	2159	2128	
1990 003F		20463	USSR	17 JAN	88.6	62.8	2197	2131	
1990 003G		20464	USSR	17 JAN	88.5	62.8	2107	2072	
1990 007B		20449	JAPAN	24 JAN	88.2	30.7	204	189	
1990 009B		20458	USSR	25 JAN	89.5	62.8	334	195	
1990 012J		20487	USSR	6 FEB	100.3	65.8	1371	178	
1990 012M		20493	USSR	6 FEB	103.8	65.8	1694	194	
1990 014B		20495	USSR	11 FEB	87.5	51.5	353	347	
1990 016B		20300	USSR	15 FEB	85.2	51.6	325	320	
1990 016C		20501	USSR	15 FEB	87.1	51.6	305	295	
1990 0215	ITSO	20524	USSR	14 MAR	89.1	28.6	295	163	
1990 022B		20526	USSR	14 MAR	89.3	64.9	693	420	
1990 024B		20530	USSR	22 MAR	86.3	82.3	127	80	

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OBJECTS DECAYED WITHIN THE REPORTING PERIOD

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	DECAY	NOTES
DMICRON 29		19428	US	29 JUN	8 MAR 90	
1964 006V		19992	USSR	30 JAN	15 MAR 90	
1965 082M2		3387	US	15 OCT	11 MAR 90	
1969 070A		3347	USSR	27 AUG	4 MAR 90	
1969 082FL	COSMOS 235	4467	US	30 SEP	10 MAR 90	
1970 085C		6330	USSR	15 OCT	10 MAR 90	
1970 089AB		5031	USSR	23 OCT	30 MAR 90	
1970 089AD		5033	USSR	23 OCT	1 MAR 90	
1972 058CL		7945	US	23 JUL	3 MAR 90	
1977 065EX		10628	US	14 JUL	21 MAR 90	
1979 017AQ		16087	US	24 FEB	28 MAR 90	
1979 017LG		18464	US	24 FEB	21 MAR 90	
1981 028AV		13443	USSR	20 MAR	29 MAR 90	
1981 028BG		13690	USSR	20 MAR	18 MAR 90	
1981 053DE		12761	USSR	4 JUN	16 MAR 90	
1981 053FH		13461	USSR	4 JUN	21 MAR 90	
1981 053FK		13463	USSR	4 JUN	16 MAR 90	
1981 053JC		14400	USSR	4 JUN	14 MAR 90	
1982 058B		13294	US	9 JUN	22 MAR 90	
1983 044CN		17099	USSR	7 MAY	28 MAR 90	
1983 044DH		17744	USSR	7 MAY	22 MAR 90	
1985 094H		16264	USSR	9 OCT	23 MAR 90	
1986 0178V		20415	USSR	19 FEB	15 MAR 90	
1986 017BW		20416	USSR	19 FEB	4 MAR 90	
1986 017BZ		20418	USSR	19 FEB	4 MAR 90	
1986 017CA		20419	USSR	19 FEB	1 MAR 90	
1986 017CE		20460	USSR	19 FEB	8 MAR 90	
1986 019CM		17305	ESA	22 FEB	31 MAR 90	
1986 019JH		17553	ESA	22 FEB	17 MAR 90	
1986 019NY		17996	ESA	22 FEB	26 MAR 90	
1986 019PP		18146	ESA	22 FEB	27 MAR 90	
1986 019QK		18178	ESA	22 FEB	26 MAR 90	
1986 019RD		18206	ESA	22 FEB	31 MAR 90	
1986 019TG		18674	ESA	22 FEB	6 MAR 90	
1986 019TT		18684	ESA	22 FEB	22 MAR 90	
1986 019UR		19307	ESA	22 FEB	9 MAR 90	
1986 044D		16789	USSR	10 JUN	7 MAR 90	
1987 020JK		19152	USSR	20 FEB	29 MAR 90	
1989 100C		20397	USSR	27 DEC	12 MAR 90	
1989 100D		20398	USSR	27 DEC	28 MAR 90	
1989 100E		20408	USSR	27 DEC	9 MAR 90	
1989 10CF		20467	USSR	27 DEC	31 MAR 90	
1989 100G		20468	USSR	27 DEC	26 MAR 90	
1990 009A	COSMOS 2057	20457	USSR	25 JAN	19 MAR 90	
1990 012C		20481	USSR	6 FEB	6 MAR 90	
1990 012D		20482	USSR	6 FEB	24 MAR 90	
1990 012E		20483	USSR	6 FEB	6 MAR 90	
1990 012F		20484	USSR	6 FEB	6 MAR 90	
1990 012G		20485	USSR	6 FEB	5 MAR 90	
1990 012H		20486	USSR	6 FEB	7 MAR 90	
1990 012K		20490	USSR	6 FEB	6 MAR 90	

OBJECTS DECAYED WITHIN THE REPORTING PERIOD

INTER- NATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	DECAY	NOTES
1990 012L		20492	USSR	6 FEB	5 MAR 90	
1990 019A	STS-36	20512	US	28 FEB	4 MAR 90	
1990 020B		20514	USSR	28 FEB	2 MAR 90	
1990 021B		20524	ITSO	14 MAR	28 MAR 90	
1990 022B		20526	USSR	14 MAR	15 MAR 90	
1990 024B		20530	USSR	22 MAR	23 MAR 90	

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FOOTNOTES

- 1* 297 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1961 OMICRON 1 AND 1961 OMICRON 2. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 2* 148 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1963 014A, 1963 014B, AND 1963 014C. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 3* 19 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1963 047A. THE OBJECT OF THIS SERIES THAT HAS DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 4* 28 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1964 006A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 5* 51 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1965 027A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 6* DEBRIS DISCOVERED IN ORBIT WHICH HAS NOT BEEN IDENTIFIED WITH ANY LAUNCH OR COUNTRY OF ORIGIN.
- 7* 470 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1965 082A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 8* 110 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1968 091A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 9* A MANNED SPACECRAFT WHICH SUCCESSFULLY LANDED ON THE MOON AND RETURNED TO SELENOCENTRIC ORBIT.
- 10* 138 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1968 097A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 11* 270 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1969 082A, 1969 082B, 1969 082C, 1969 082D, 1969 082E, 1969 082F, 1969 082G, 1969 082H, 1969 082J, AND 1969 082K. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 12* 366 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1970 025A AND 1970 025B. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 13* 103 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1970 069A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 14* DEBRIS DISCOVERED IN ORBIT WHICH HAS NOT BEEN IDENTIFIED WITH ANY LAUNCH.

FOOTNOTES (CONT)

- 15* 46 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1970 091A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 16* 115 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1971 015A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 17* 227 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1972 058A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 18* 198 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1973 086A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 19* 148 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1974 089A, 1974 089B, AND 1974 089C. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 20* 208 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1975 004A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 21* 70 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 067A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 22* 159 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 077A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 23* 14 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 105A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 24* 51 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 120A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 25* 78 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 126A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 26* 172 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1977 065A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 27* 70 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1977 121A. THE OBJECT OF THIS SERIES THAT HAS DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

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FOOTNOTES (CONT)

- 29* 210 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1978 026A AND 1978 026B. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 29* 399 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1978 100A, 1978 100B, AND 1978 100C. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 30* 288 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1979 017A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 31* 47 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1980 030A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 32* 79 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1980 089A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 33* 69 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1981 028A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 34* 305 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1981 053A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 35* 33 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1982 115A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 36* 59 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1982 055A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 37* 27 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1983 091A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 39* 159 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1983 044A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 40* 30 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1984 104A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 41* 46 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1984 083A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

FOOTNOTES (CONT)

- 42* 24 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1985 082A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 43* 25 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1985 030A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 44* 30 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1986 024A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 45* 493 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1986 019A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 46* 30 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1986 067A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 47* 81 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1986 017A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 48* 195 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1987 004A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 49* 108 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1987 020A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
- 50* 18 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1988 065A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
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